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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NETLIST, INC.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC., and SAMSUNG SEMICONDUCTOR, INC.,

Defendants.

Civil Action No. 2:21-cv-00463-JRG

JURY TRIAL DEMANDED

DEFENDANTS' COMBINED RULE 50(B) MOTION FOR JUDGMENT AS A MATTER OF LAW AND RULE 59 MOTION FOR A NEW TRIAL

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Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. (collectively, "Samsung") move pursuant to Rules 50(b), 59, and 60 for judgment as a matter of law ("JMOL"), for a new trial, to set aside or reduce damages, and/or to reconsider, correct, or amend the judgment.

First, Samsung is entitled to JMOL of non-infringement for each of the asserted patents. The facts concerning the structure and operation of the accused products were not in dispute at trial. For three of the asserted patents—U.S. Patent Nos. 10,949,339 (the "'339 patent"), 8,787,060 (the "'060 patent"), and 9,318,160 (the "'160 patent")—the Court's claim construction rulings made it impossible for Netlist to prove infringement based on those undisputed facts. For the remaining two patents—U.S. Patent Nos. 11,016,918 (the "'918 patent") and 11,232,054 (the "'054 patent")—Netlist did not present any evidence that the products meet the plain language of the claims. Instead, Netlist's experts repeatedly ignored or contradicted the claim language, as construed by the Court, and their opinions thus do not support the verdict.

As to the '339 patent, all asserted claims require a "plurality of byte-wise buffers." The Court construed the claims as limited to buffers with a "fork-in-the-road" configuration requiring multiple data paths, as opposed to a "straight-line" arrangement with only a single data path. Because Netlist failed to present any evidence that the buffers in the accused products have a "fork-in-the-road," Samsung is entitled to JMOL of non-infringement.

The '060 and '160 patents are directed to memory modules in which multiple "array dies" are stacked vertically, one on top of another. Samsung is entitled to JMOL of non-infringement for two independent reasons. First, based on Netlist's disclaimer of DRAM memory during prosecution, the Court construed the term "array die" in the asserted claims to mean an "array die that is different from a DRAM circuit." Netlist's expert agreed that the accused products include

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DRAM memory, and therefore they do not infringe the claims as a matter of law. Second, Netlist failed to show that the accused Samsung products contain "die interconnects" that are "not in electrical communication with" certain array dies, as required by the claims.

The '918 and '054 patents are directed to a fundamentally different type of memory module than the accused products. The claimed memory module of the '918 patent requires a "converter circuit," whereas the accused products use low drop out ("LDO") regulators. Netlist's expert admitted that his infringement opinion was based on the legally erroneous position that an LDO satisfies this limitation solely because it performs the *function* of converting a voltage. Because Netlist did not offer any evidence that an LDO has the *structure* of a "converter circuit," Samsung is entitled to JMOL of non-infringement.

The '054 patent requires that the memory module transition "from a first operable state to a second operable state" when the voltage to the module fluctuates. The purpose of the second state is to back up data to non-volatile memory on the module. Netlist's expert agreed that when the accused products experience a voltage fluctuation, all data is lost, and the memory ceases to function. Netlist thus failed to show that the products have a "second *operable* state."

Samsung is also entitled to JMOL as to the '339, '918, and '054 patents for the independent reason that Netlist failed to prove that any accused product meets all of the limitations of any asserted claim. Having elected not to argue that standard-compliant products necessarily infringe, Netlist had to show that *every* accused product meets all claim limitations. Netlist failed to do so.

Second, Samsung is entitled to JMOL of invalidity as to the '918, '054, and '339 patents because the asserted claims lack written description support. The Federal Circuit has held that JMOL of invalidity is required where any reasonable juror would conclude that the patent claims have a broader scope than the invention described in the specification. Here, through continuation

practice and overbroad, litigation-driven claim interpretations, Netlist has stretched the asserted claims of these three patents far beyond the alleged inventions disclosed in the specification. No reasonable juror could find otherwise.

Third, Samsung is entitled to JMOL on the issue of damages. The jury's award of $303,150,000 in damages—for a period of only 16 months—is not based on any legally and economically reliable evidence. Netlist's damages expert, Mr. Kennedy, offered a fundamentally flawed theory in which Samsung, in a hypothetical negotiation, would agree to give Netlist ***100%*** of the ***revenue*** corresponding to the patented technology, calculated as the price difference between the accused products and alleged non-infringing alternative products. Courts have repeatedly rejected similar theories as untethered to economic reality. Mr. Kennedy's analysis also failed to properly apportion the value of the allegedly patented features. Mr. Kennedy compounded the errors in his analysis by (i) ignoring the only real-world licenses to the asserted patents, while relying on a non-comparable agreement that covers thousands of third-party patents, many of which are unrelated to memory technology, (ii) failing to establish that the alternatives were non-infringing, available, and acceptable to customers, and (iii) for the accused DDR5 products, basing his calculations on an unreliable hedonic regression analysis performed by a different expert who did not testify (Dr. Groehn)—even though the Court specifically noted the need for cross-examination in denying Samsung's *Daubert* motion against Dr. Groehn, *see* Dkt. 203.

Mr. Kennedy's improper testimony led to a deeply flawed $303 million damages award that equated to between 14.2% and 28.7% of the ***total revenues*** of the accused products. It is well established that a court may grant JMOL of no damages where a plaintiff has chosen to rely on a legally flawed theory. The Court should do so here. In the alternative, the Court should award damages of no more than $19.3 million—the maximum amount calculated by Samsung's expert.

[redacted]

Fourth, Samsung is entitled to JMOL that any infringement of the asserted patents was not willful. Netlist failed to provide sufficient evidence that, following Netlist's purported termination of Samsung's license to the asserted patents (which Samsung maintains was ineffective to terminate the license), Samsung engaged in any deliberate or intentional infringement.

Fifth, in the alternative, a new trial is warranted for multiple reasons, including improper claim construction argument from Netlist's experts, erroneous jury instructions, the exclusion of critical evidence bearing on multiple issues, and improper argument by Netlist's counsel that inflamed the jury and prejudiced Samsung.

BACKGROUND

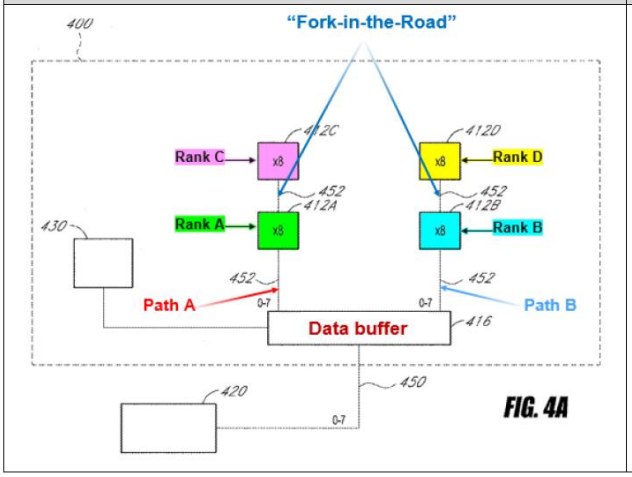
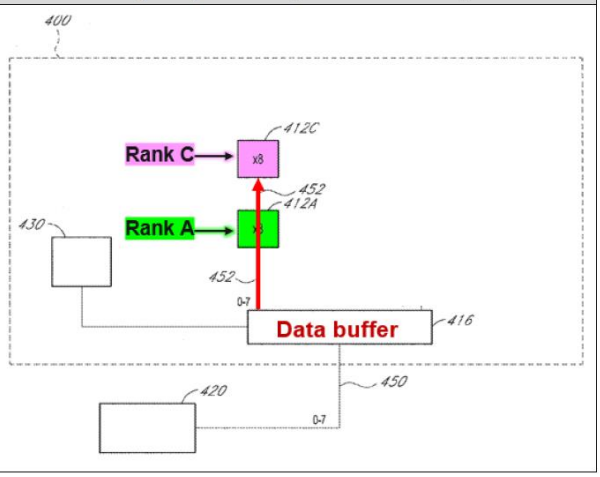
Netlist's amended complaint in this action alleged infringement of six patents. Dkt. 23. After dropping one of those patents from the case (U.S. Patent No. 10,860,506), Netlist proceeded to trial on the '339, '060, '160, '918, and '054 patents (the "asserted patents").

I. Netlist attempts to prove infringement by ignoring the Court's claim constructions and the claim language.

A. The '339 patent

The '339 patent, titled "Memory Module with Controlled Byte-Wise Buffers," is directed to memory modules containing multiple memory chips, arranged in different "ranks." JTX2 at 1. The memory module includes buffers that "drive" the data from the computer to the desired rank of memory chips. As Netlist explained during claim construction, there are two fundamentally different types of buffers: those having a "Fork-in-the-Road" configuration and those having a "Straight-Line" arrangement. Dkt. 76 at 4. As illustrated in the following figure from Netlist's claim construction brief, in a "Fork-in-the-Road" configuration, there are two different paths through the data buffer ("path A" and "path B").

[redacted]

"Fork-In-The-Road"	Exemplary "Straight-Line" Layout[3]
	

Id. Half of the memory ranks are connected to "path A," and half are connected to "path B." When data is written to memory, the buffer enables only one path to "drive" the data to the correct rank. By contrast, "[i]n the 'Straight Line' arrangement, ranks of memory devices are on the *same data path* without any 'Fork in the Road.'" *Id.* (emphasis in original).

In its *Markman* Order, the Court held that the claims of the '339 patent are limited to memory modules having buffers with a "fork-in-the-road" configuration. Dkt. 114 at 10. Accordingly, the Court construed the term "drive," as used in all of the asserted claims, to mean "enabling only one of the data paths while the other possible paths are disabled." *Id.*

Netlist contended that Samsung's DDR4 LRDIMM products infringe claims 1, 8, and 9. The parties' experts agreed that under the "fork-in-the road" construction, the claims require at least two byte-wise data paths for driving write data to the appropriate memory chips. Tr. 449:12–17 (Mangione-Smith); Tr. 1036:16–1037:5, 1037:25–1038:2 (McAlexander). Both experts also agreed that the accused products have "only a single byte-wise data path in the byte-wise buffer" for writing data. Tr. 448:25–449:4, 451:11–18 (Mangione-Smith); Tr. 924:9–12 (McAlexander).

Despite this admission, Netlist's expert testified that a single 1-byte (8-bit) data path could be viewed as an upper "nibble" of four bits and a lower "nibble" of four bits. Tr. 392:1–16

[redacted]

(Mangione-Smith). Netlist did not offer evidence that different ranks of memory are connected to these 4-bit data paths or that the buffers ever switch data between different 4-bit paths. The only "fork-in-the-road" that Netlist's expert purported to identify was a "fork" *outside* the accused memory module. Tr. 387:6–14, 396:24–397:5 (Mangione-Smith).

B. The '060 and '160 patents

The '060 and '160 patents are directed to memory modules in which multiple silicon chips are stacked vertically, one on top of another. Claim 1 of the '060 patent, for example, requires "a plurality of stacked array dies," which contain the actual memory, and a "control die" to determine which array die to write data to or read data from. JTX5 at 22.

Netlist accused Samsung's HBM products of infringing claims 1, 5, and 7 of the '060 patent and claim 5 of the '160 patent. During claim construction, the Court held that Netlist had "clearly and unambiguously" disclaimed the use of "DRAM circuits" in attempting to distinguish the prior art "Rajan" reference, and the Court therefore construed "array die" in the asserted claims to mean "array die that is different from a DRAM circuit." Dkt. 114 at 31–32. Netlist filed, but later withdrew, objections to Judge Payne's *Markman* order. Dkt. 133, 192, 194.

At trial, Netlist's expert, Dr. Brogioli, agreed that the accused products contain "millions of DRAM cells," Tr. 582:1–6, and that the DRAM cells "have circuit components," Tr. 583:4–6. Yet he opined that the DRAM circuits in Samsung's products are "array dies" by asserting (notwithstanding the claim construction) that Netlist had not disclaimed the use of DRAM. Tr. 618:24–619:5. Although Netlist had previously recognized that the disclaimer in the Court's construction is not "limited to Rajan's 'DRAM circuits 206A–D'"—but rather extends "broadly to any DRAM circuits," Dkt. 133 at 1—Dr. Brogioli testified [redacted]

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[redacted]

Regarding the claim requirement that the "die interconnects" are "not in electrical communication with" certain "array dies," Dr. Brogioli admitted that the signal path in the accused products travels across each and every core die. Tr. 606:3–608:7, 609:8–12. His infringement opinion was based on his view that the claims require avoiding electrical communication with only "data ports" or "receivers" on the dies—terms that do not appear in the relevant claim limitations. Tr. 493:25–494:9, 519:14–20, 520:4–18, 623:8–19.

C. The '918 and '054 patents

The '918 and '054 patents are the sixth and seventh continuations, respectively, in a chain of patent applications and are titled "Flash-DRAM Hybrid Memory Module[s]." *E.g.*, JTX3 at 1. Their specification describes a hybrid memory module that can transfer data between volatile DRAM memory and non-volatile flash memory on the module. *Id.* at 28–29 (1:65–4:27).

At trial, Netlist asserted that Samsung's DDR5 RDIMM memory modules infringe claims 1, 5, 13, 16, 18, and 19 of the '918 patent, each of which requires, *inter alia*, a "converter circuit configured to provide a fourth regulated voltage." *E.g.*, JTX3 at 46 (38:31–32). Netlist's expert testified that an LDO regulator in the accused products satisfies the "converter circuit" limitation, Tr. 335:4–14 (Mangione-Smith), but he admitted that he "did not look for any structural element beyond the functional requirement that something reduced the voltage," Tr. 416:21–24.

Netlist asserted that Samsung's DDR5 SODIMM, UDIMM, and RDIMM memory modules infringe claims 16 and 17 of the '054 patent. These claims require the module to "transition[] from a first operable state to a second operable state" in response to voltage changes. JTX4 at 47 (40:19–20). The purpose of the second state is to transfer data from volatile memory to non-volatile memory on the module, thereby preventing the data loss that would ordinarily occur when volatile memory loses power. *See id.* at 29 (3:59–62), 39–40 (24:60–25:7). Netlist's expert Dr. Mangione-Smith testified that the accused products are in a "second operable state" after an

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overvoltage condition, but he conceded that in this state, the "DRAMs are turned off" and "don't operate," and the data "gets wiped out." Tr. 379:7–8, 431:21–432:9.

Samsung's expert testified that the asserted claims of both patents are invalid for lack of written description because they do not recite a memory module containing both volatile and non-volatile memory able to transfer data to each other. Tr. 899:7–23 (McAlexander).

D. Willfulness

The Court ruled that Samsung did not infringe (and thus did not willfully infringe) before Netlist's purported termination of Samsung's license to the asserted patents in July 2020. Dkt. 432 at 2 (granting summary judgment that non-HBM products did not infringe prior to July 15, 2020); *id.* at 4 (granting summary judgment of no willful infringement for non-HBM products prior to July 15, 2020); Tr. 1266:4–1267:1 (granting JMOL of no infringement by HBM products prior to July 15, 2020). Netlist, however, argued that Samsung willfully infringed following the alleged license termination. Netlist offered no evidence that Samsung knew about four of the asserted patents before the filing of this case. As to the fifth patent (the '060 patent), Netlist's argument centered on a communication from 2016—when Samsung was licensed and four years before the purported termination. PX446.

II. Netlist seeks over $400 million in damages for a period of 16 months.

Netlist presented its damages case through its expert, David Kennedy, who testified about damages in the form of a reasonable royalty. Mr. Kennedy opined that the parties would agree, at a hypothetical negotiation, to a royalty equating to 100% of the revenue associated with the patented technology, which he calculated as the difference between the price of the accused products and the price of alleged "non-infringing alternative[s]." Tr. 703:16–25. Mr. Kennedy contended that such an award was appropriate because "without Netlist's technology, [Samsung] would lose the sale." Tr. 695:16–17. He calculated damages for the asserted patents as follows:

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DDR5 products. Mr. Kennedy testified that the '918 and '054 patents enable a 30% increase in power efficiency without reducing speed. Tr. 693:15–694:9. He testified that without those patents, Samsung would have to sell a 20% slower product at a 28.8% price reduction, resulting in $196.3 million in lost revenues, all of which Samsung would pay to Netlist. Tr. 696:12–699:5. Mr. Kennedy's DDR5 damages calculations relied on a regression analysis performed on DDR4 products by a different expert, Andreas Groehn, who did not testify. Tr. 696:12–699:5.

DDR4 products. Mr. Kennedy testified that the '339 patent enables the use of two DDR4 LRDIMMs per channel, and that without the patent Samsung would have to sell a single, larger LRDIMM at a reduced price. Tr. 700:6–17. He opined that the revenue corresponding to this price difference was $44.2 million, all of which Samsung would pay to Netlist. Tr. 701:4–14.

HBM products. Mr. Kennedy testified that the '060 and '160 patents enable the sale of HBM products with DRAMs stacked 8-high or higher, and that without those patents Samsung would have to sell 4-high products at a lower price. Tr. 701:15–702:22. Mr. Kennedy testified that the aggregate difference in price—all of which would be paid to Netlist—equated to $163.7 million in revenue. Tr. 702:10–18.

Based on these calculations, Mr. Kennedy opined that a royalty for the asserted patents would amount to $404.2 million for a period of 16 months (from December 2021 to May 2023). In support of his opinion, Mr. Kennedy relied on the Rambus license—a non-comparable agreement covering thousands of third-party patents—to show that "Samsung agreed to pay $1.1 billion" after a prior license was terminated and Samsung was accused of infringement. Tr. 691:15–23; *see also* Tr. 741:20–23. Mr. Kennedy disregarded the only licenses to the asserted patents (to Samsung and SK hynix). Tr. 692:15–19.

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Samsung responded to Netlist's damages case through its expert Paul Meyer. Mr. Meyer analyzed the Samsung and SK hynix licenses, among other evidence, and [redacted] Specifically, Mr. Meyer opined [redacted] When multiplied by the accused product sales, Mr. Meyer testified [redacted]

III. Samsung moves for JMOL, and the jury returns a $303 million verdict.

At the close of evidence, Samsung moved for JMOL on several issues pursuant to Rule 50(a). Tr. 1232:9–21; Dkt. 477. The Court granted Samsung (a) JMOL of no damages for the '054 patent before January 25, 2022, Tr. 1266:1–3; and (b) JMOL of no infringement prior to July 15, 2020, Tr. 1266:4–1267:1. The Court denied Samsung's motion for JMOL of non-infringement for each of the asserted patents, Tr. 1237:16–1243:9, 1265:6–9; Samsung's motion for JMOL of invalidity for the '918, '054, and '339 patents, Tr. 1250:9–1252:21, 1265:19–25; Samsung's motion for JMOL of no willful infringement, Tr. 1245:22–1249:18, 1265:10–13; and Samsung's motion for JMOL of no damages, Tr. 1265:14–18; Dkt. 477.

On April 21, 2023, the jury returned its verdict, finding that Samsung infringed at least one claim within each of the three patent families (*i.e.*, the '339 patent, the '918 and '054 patents, and the '060 and '160 patents). Dkt. 479 at 4. The jury found that the asserted claims of the '339, '918, and '054 patents were not invalid, *id.* at 5, and that Samsung's infringement was willful, *id.* at 6. The jury awarded $33,150,000 for infringement of the '339 patent, $147,225,000 for infringement of the '918 and '054 patents, and $122,775,000 for infringement of the '060 and '160 patents—for a total of $303,150,000. *Id.* at 7.

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Following a bench trial on Samsung's defenses of equitable estoppel, prosecution laches, and unclean hands, the Court declined to find any of those defenses applicable. Dkt. 550. On August 11, 2023, the Court entered final judgment. Dkt. 551. The Court determined that enhancement of damages pursuant to 35 U.S.C. § 284 was not appropriate. *Id.* at 3.

APPLICABLE LEGAL STANDARD

"When a case is tried to a jury, a motion for judgment as a matter of law is a challenge to the legal sufficiency of the evidence supporting the jury's verdict." *Cowart v. Erwin*, 837 F.3d 444, 450 (5th Cir. 2016) (cleaned up). "JMOL should be granted when a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue." *Montano v. Orange Cnty., Tex.*, 842 F.3d 865, 873 (5th Cir. 2016) (cleaned up). The Court may grant a new trial if the verdict is against the weight of the evidence, the damages are excessive, the trial was unfair, or prejudicial error occurred. *See Smith v. Transworld Drilling Co.*, 773 F.2d 610, 612–13 (5th Cir. 1985); *Cates v. Creamer*, 431 F.3d 456, 460 (5th Cir. 2005). Additionally, "when the award is deemed merely 'excessive,' the district court may remit the award." *Polanco v. City of Austin, Tex.*, 78 F.3d 968, 981 (5th Cir. 1996).

ARGUMENT

Samsung is entitled to JMOL on the issues of non-infringement as to all asserted patents, invalidity as to the '918, '054, and '339 patents, damages as to all patents, and willful infringement as to all patents. In the alternative, a new trial should be granted.

I. Samsung is entitled to JMOL, or alternatively a new trial, on non-infringement.

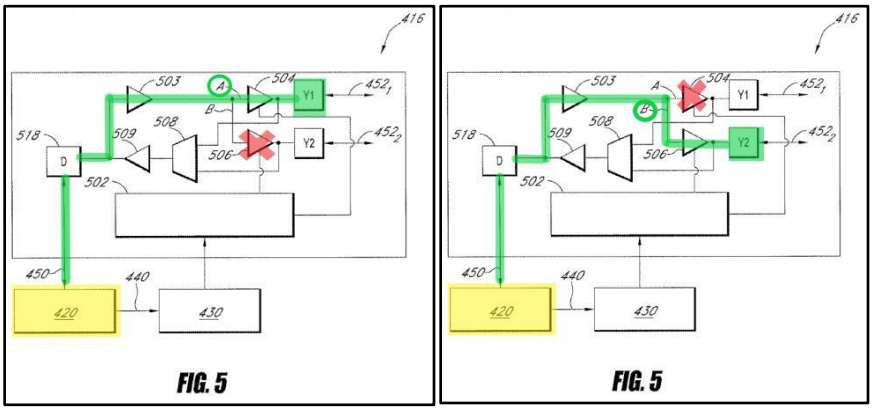
Netlist failed to present evidence that the accused Samsung memory modules infringe any of the asserted patents. Samsung is therefore entitled to JMOL for the reasons discussed below. Each of these grounds was raised in Samsung's Rule 50(a) motion. Tr. 1237:16–1243:9.

[redacted]

A. Samsung is entitled to JMOL of non-infringement of the '339 patent because Netlist failed to prove that the accused products have multiple "byte-wise data paths" or "actively drive a byte-wise section of the N-bit wide write data."

Claim 1 of the '339 patent recites a memory module comprising, among other things, "a plurality of byte-wise buffers."[1] JTX2 at 32 (19:40–52). Each buffer must have a "first side" coupled to the computer and a "second side" coupled to multiple "ranks" of DDR DRAM devices. *Id.* When data is written to the memory module, the buffer must "actively drive a respective byte-wise section" of the data from the first side of the buffer to the second side of the buffer. *Id.*

The Court construed the phrase "to drive" to mean "enabling only one of the data paths while the other possible paths are disabled." Dkt. 114 at 10. The buffers in the '339 patent have multiple data paths, shown in Figure 5 as "path A" and "path B" (reproduced below), that connect the "first side" of the buffer to different ranks of DDR DRAM devices on the "second side" of the buffer. JTX2 at 30 (16:7–25); Dkt. 114 at 8–9; Dkt. 82 at 21–22. The claim thus requires what Netlist itself describes as a "Fork-in-the-Road," Dkt. 76 at 4, where the memory module switches between these two paths depending on the rank to which the data is to be written.



[1] Samsung is accused of infringing claims 1, 8, and 9 of the '339 patent. Claims 8 and 9 depend from claim 1. Since Samsung does not infringe claim 1, it does not infringe claim 8 or 9.

[redacted]

Dkt. 82 at 22. After reviewing both the specification and the prosecution history, "the Court adopt[ed] the so-called fork-in-the-road approach" in its claim construction. Dkt. 114 at 10.

The accused Samsung LRDIMM products do not satisfy the "drive" limitation because the buffers used in Samsung's products do not have the required "fork-in-the-road." The experts agree there is only a single data path through the buffer. Tr. 448:25–449:4, 451:11–18 (Mangione-Smith); Tr. 924:9–12 (McAlexander). In an attempt to obscure this fact, Netlist's expert arbitrarily divides the single data path in half and calls each half a separate path. But Netlist's sophistry does not constitute substantial evidence of infringement, for at least two independent reasons.

First, the claim requires multiple "byte-wise data paths." A byte is 8 bits. When Netlist's expert attempts to characterize a single 8-bit data path as two separate paths, each path is only half as wide, *i.e.*, 4 bits. A 4-bit data path is not a "byte-wise data path."

Second, even if a 4-bit data path could be considered a "byte-wise data path," Samsung still does not infringe because there is no "fork-in-the-road"—that is, the buffer does not have the option of driving 4 bits of data down one half of the path or the other. All 8 bits are driven down the same path. The accused products thus do not satisfy the requirement that the buffers "enabl[e] only one of the data paths while the other possible paths are disabled." Dkt. 114 at 10.

1. The buffers used in Samsung's DDR4 LRDIMM products do not have two or more "byte-wise data paths."

Under the Court's "fork-in-the-road" claim construction, there must be multiple data paths through the buffer. Indeed, the *entire* dispute during claim construction was whether the claims are limited to a "fork-in-the-road" configuration or instead encompass what Netlist called a "'Straight-Line' arrangement." Dkt. 76 at 4. Netlist described the difference as follows:

> In a "Fork-in-the-Road" configuration, switching between the multiple data paths may occur. In the "Straight-Line" arrangement, ranks of memory devices are on the *same data path* without any "Fork-in-the-Road."

[redacted]

Dkt. 76 at 4 (citations omitted) (emphasis in original). The Court rejected Netlist's argument that the claims encompass buffers having a "straight-line" arrangement and "adopt[ed] the so-called fork-in-the road approach." Dkt. 114 at 10. At trial, Netlist's expert, Dr. Mangione-Smith, admitted that, under the Court's "fork-in-the-road" construction, the claims require at least "[t]wo write paths" from the first side of the buffer to the second side of the buffer. Tr. 449:12–17.

The buffers in the accused DDR4 LRDIMM products indisputably do *not* have multiple data paths. Dr. Mangione-Smith admitted that the buffers in Samsung's LRDIMM products have only a single data path. Tr. 392:16–22 ("Q . . . Is that green line there that's annotated on the figure, is that a single data path? A. Yes."). But despite this admission, Dr. Mangione-Smith opined that the claim was satisfied because he could *think* of the single data path, which is 8 bits wide, as being two data paths, each of which is 4 bits wide. He opined that a single byte can be thought of as being made up of two 4-bit "nibbles":

> If we zoom in on this figure a little bit more, hopefully it becomes apparent that in the bottom right-hand edge, it refers to a lower nibble and an upper nibble. A nibble is just half of a byte.
>
> And if you look on the right-hand side of that blow-up, hopefully it's apparent that there's two sets of these circuits stacked on top of each other. So there's actually one circuit for the upper half byte and one for the lower half byte.

Tr. 392:2–10. But renaming "one byte" as "two nibbles" does not alter the fact that the buffers in Samsung's modules have only a single data path.

Netlist's attempt to mischaracterize a single data path as two data paths runs afoul of the language of claim 1. The claim recites "a plurality of byte-wise buffers." JTX2 at 32 (19:40). Each "byte-wise buffer" is required to have a "byte-wise data path" and to "actively drive a respective byte-wise section of the N-bit wide write data . . . from the first side to the second side" of the buffer. *Id.* at 32 (19:56–60). The term "drive" requires *paths*, plural, because it was construed as

[redacted]

"enabling only one of the data *paths* while the other possible *paths* are disabled."[2] Dkt. 114 at 10. Moreover, it is undisputed that a byte is eight bits. *See* Tr. 443:9–12 (Mangione-Smith).

On cross examination, Netlist's expert admitted that he had identified two 4-bit data paths—*not* that Samsung's LRDIMM products have two 8-bit data paths:

> Q . . . But we can agree so there's -- so the record is clear on this, that if the claim requires eight bits in the byte-wise buffer, you've only shown the jury here . . . one path of four bits and another separate path with four bits. Isn't that right?
>
> A. Yes. Yeah, I agree.

Tr. 455:3–9 (Mangione-Smith). Two 4-bit (or "nibble-wise") data paths do not satisfy the claim's requirement of "byte-wise" data paths. *See* Tr. 473:20–474:3 (Mangione-Smith admitting that the claim "does not recite actively driving a nibble-wise section of the write data along a nibble-wise data path").

Netlist's entire infringement case rests on the flawed argument that a "byte-wise data path" can have only four bits. According to Netlist, a "byte-wise data path" requires only that "the width is measured in terms of bytes." Tr. 453:25–454:5 (Mangione-Smith). So, under Netlist's theory, a 4-bit data path is still a "byte-wise data path" because 4 bits is "half of a byte." Tr. 453:17–19 (Mangione-Smith). Not only is Netlist's argument contrary to the plain meaning of "byte-wise," but it reads that term out of claim 1. Under Netlist's construction, *any* data path, no matter the size, would be a "byte-wise data path" because *any* data path can be measured in terms of bytes. A 1-bit data path would be one-eighth of a byte; a 2-bit data path would be one-fourth of a byte; and a 15-bit data path would be one and seven-eighths of a byte.

Netlist's argument is also contrary to the specification, which makes clear that a 4-bit buffer or data path is not "byte-wise." For example, the patent explains that the "data transmission circuit"

[2] All emphasis added unless otherwise noted.

[redacted]

(*i.e.*, the buffers) of Figures 4A and 4B "has a bit width of 8 bits," and, as such, the circuit "serve[s] as a 'byte-wise' buffer." JTX2 at 29 (13:43–53, 13:57–14:8, 14:15–18). The specification also distinguishes between 4-bit data paths and 8-bit data paths. *See id.* at 31 (17:30–32) ("The data transmission circuits 416 may each control, for example, a nibble-wide data path or a bytewide-data path."). But while the specification may contemplate using 4-bit data paths, claim 1 is expressly limited to "byte-wise" data paths—which the patent makes clear are different from and larger than a nibble. *Id.* at 32 (20:6–8) ("to drive a ***first nibble*** of the respective ***byte-wise*** section of the N-bit wide write data"); *id.* (20:13–14) ("to drive a ***second nibble*** of the respective ***byte-wise*** section of the N-bit wide write data"). Netlist's interpretation therefore conflicts with the plain and ordinary meaning of "byte-wise." *See, e.g.*, *Gen. Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 770 (Fed. Cir. 1996) (rejecting claim interpretation "which was inconsistent with the specification and drawings and rendered superfluous the claim requirement"); *see also Wis. Alumni Rsch. Found. v. Apple Inc.*, 905 F.3d 1341, 1348 (Fed. Cir. 2018) ("Giving a term its plain and ordinary meaning does not leave the term devoid of any meaning whatsoever.").

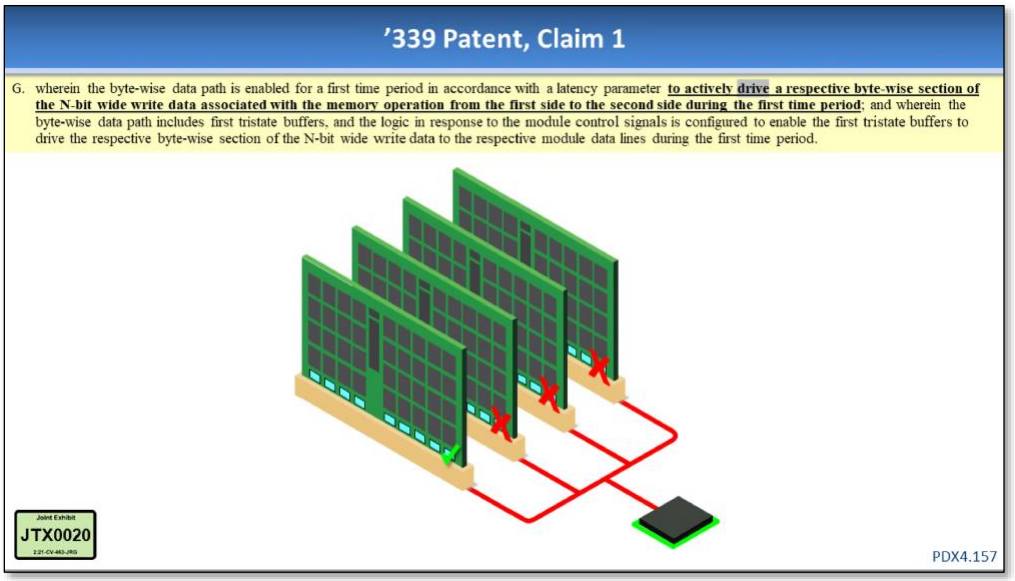
Netlist has not offered any evidence to support its claim that a 4-bit data path is a "byte-wise" data path. Dr. Mangione-Smith did not identify any support in the specification or prosecution history for his interpretation, nor was he able to identify even a single instance where anyone had referred to a 4-bit data path as a "byte-wise data path." His conclusory testimony that a 4-bit data path satisfies the claims is insufficient to sustain the verdict. *See, e.g.*, *Dominion Energy, Inc. v. Alstom Grid LLC*, 725 F. App'x 980, 986 (Fed. Cir. 2018) (expert testimony that is "conclusory, unsupported, [or] contrary to the evidence" is not "substantial evidence to support the jury's verdict"); *Kim v. ConAgra Foods, Inc.*, 465 F.3d 1312, 1320 (Fed. Cir. 2006) ("conclusory testimony" from an expert not sufficient to defeat JMOL).

[redacted]

2. The buffers in Samsung's LRDIMM products do not "enabl[e] only one of the data paths while the other possible paths are disabled."

Even if a 4-bit data path could be a "byte-wise data path," Samsung would still be entitled to JMOL because Netlist failed to prove that, during a write operation, the buffers "actively drive a respective byte-wise section" of the data. Under the Court's claim construction, to "drive" the data requires "enabling only one of the data paths while the other possible paths are disabled." Dkt. 114 at 10. As the Court explained, the data paths in question are the paths *within* the buffer. *Id.* at 7 ("[T]he claims also require logic configurable to enable a data path to 'actively drive' write data *from one side of the buffer to the other side*." (citing JTX2 at 32 (19:53–67))); *id.* at 9 (same).

Netlist failed to produce any evidence that the accused products enable only one data path from one side of the buffer to the other with the other possible paths disabled. Unable to prove that the paths *within* the buffers satisfy this requirement, Netlist's expert instead cited the data paths *from the controller in the computer to the LRDIMMs*. Specifically, Dr. Mangione-Smith offered the following diagram showing four different memory modules, each containing buffers represented by the turquoise rectangles at the bottom of the modules:



PDX4.157.

[redacted]

Relying on this figure, he argued that the "fork in the road" requirement was satisfied because when the buffers on one DIMM are on (*i.e.*, the DIMM denoted by the green checkmark), the buffers on the other DIMMs are off (*i.e.*, the DIMMs denoted by the red X):

> Q. Yes. Can you show what figure 3A, what you just discussed about one data buffer being turned on and the other off, what are you showing there with your illustration?
>
> A. I put a green checkmark next to the data buffers on the first DIMM and a red X on the other three DIMMs because they are turned off.
>
> Q. So for a given data transmission, there's only a single path for the data?
>
> A. That's correct.
>
> * * * *
>
> Q. So just going back to your diagram, so when the first four bits get driven through the buffer, the buffers on all the other DIMMs are off. Is that right?
>
> A. That's right. Only the buffer on DIMM 1 is on.
>
> Q. And does this fork in the road approach actually work in the products?
>
> A. Yes. This is exactly how the product works.

Tr. 387:6–14, 396:24–397:5; *see also* Tr. 385:20–21.

Dr. Mangione-Smith never contended that the 4-bit data paths within the buffer—*i.e.*, the data paths discussed in Section I.A.1—meet the selectively enabling requirement of the claims. Indeed, he admitted that what he had identified as the alleged "fork-in-the road" was "off of the module." Tr. 473:1–10. But the plain language of the claims requires multiple byte-wise data paths "between the first side and the second side" of the buffer *on a single memory module*, JTX2 at 32 (19:48–49)—as Dr. Mangione-Smith himself was forced to concede, Tr. 473:15–19 (agreeing that "everything that's required in the claim. . . has to be on the module"). Netlist's reliance on multiple data paths between the controller in the computer and the memory modules installed in the computer is contrary to the claim language and therefore cannot support the verdict.

[redacted]

B. Samsung is entitled to JMOL of non-infringement of the '060 and '160 patents.

Netlist accused Samsung of infringing claims 1, 5, and 7 of the '060 patent and claim 5 of the '160 patent. Samsung is entitled to JMOL of non-infringement because Netlist failed to provide sufficient evidence that the accused HBM products meet two distinct limitations of the claims.

1. Netlist failed to prove that the accused products have "array dies" that are not "DRAM circuits."

The asserted claims require "a plurality of stacked array dies" ('060 patent, claim 1) or "stack array dies" ('160 patent, claim 1), which contain the actual memory, and a "control die" that manages how data is read from and written to the array dies. The Court held that Netlist disclaimed the use of "DRAM circuits" during prosecution and therefore construed "array die" to mean an "array die that is different from a DRAM circuit." Dkt. 114 at 32. At trial, Netlist failed to present any evidence that the accused products contain an "array die that is different from a DRAM circuit," under the plain meaning of that phrase. Samsung is therefore entitled to JMOL.

a. The Court construed "array die" to exclude "DRAM circuits."

The meaning and scope of the term "array die" was thoroughly considered during claim construction. Netlist argued in its *Markman* brief that, to the extent it disclaimed anything during prosecution, it disclaimed only the use of the *specific* DRAM circuits in Rajan. Dkt. 76 at 28–29. The Court disagreed, holding that Netlist had "clearly and unambiguously" disclaimed the use of DRAM circuits, without limitation. Dkt. 114 at 32. Netlist then filed objections to the Court's *Markman* order, again arguing that any disclaimer should be "limited to Rajan's 'DRAM circuits 206A–D'" and should not extend "broadly to any DRAM circuits," Dkt. 133 at 1, but it later withdrew its objections, Dkt. 192, 194, thereby allowing the "broad" disclaimer to stand.

The Court did not further construe the term "DRAM circuit." As a result, this term must be given its plain and ordinary meaning. *See, e.g., Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d

[redacted]

683, 696 (Fed. Cir. 2008) (when a term is not construed by the Court, "the ordinary meaning control[s]").

b. The memories in the accused HBM products are "DRAM circuits."

It is undisputed that the accused HBM products have memory dies that contain DRAM. Netlist's expert, Dr. Brogioli, agreed that the accused products contain "millions of DRAM cells . . . in those DRAM cores," Tr. 582:1–6, and that the DRAM cells "have circuit components," Tr. 583:4–6. Samsung's expert, Dr. Robins, likewise testified that the "DRAM dies of the Samsung products contain lots of DRAM circuits and DRAM circuitry." Tr. 1055:4–5. In view of this evidence, no reasonable jury could find the accused products do not contain "DRAM circuits" under the plain and ordinary meaning of that term.

c. The testimony of Netlist's expert is legally insufficient to support the verdict.

Netlist's expert, Dr. Brogioli, [redacted] His opinions do not constitute substantial evidence for at least two independent reasons.

First, Dr. Brogioli's opinions do not support the jury verdict because he failed to apply the plain and ordinary meaning of "DRAM circuit." *See Exergen Corp. v. Wal-Mart Stores, Inc.*, 575 F.3d 1312, 1321 (Fed. Cir. 2009) ("No party may contradict the court's construction to a jury."); *Liquid Dynamics Corp. v. Vaughan Co., Inc.*, 449 F.3d 1209, 1224 n.2 (Fed. Cir. 2006) ("expert opinion evidence" was "irrelevant because it was based on an impermissible claim construction").

Dr. Brogioli explicitly drew a distinction between a "DRAM circuit" and "a DRAM circuit as that term is used in the Court's claim construction":

> Q. Does the fact that a memory die contains DRAM make that memory die a DRAM circuit?

[redacted]

A. Yes.

Q. Does the mere fact that one of these array dies contains DRAM, does that turn it into a DRAM circuit as that term is used in the Court's claim construction?

A. Oh, the array dies have DRAM cells in them, but that's not the DRAM circuit that the claim construction's talking about.

Tr. 617:23–618:6. Dr. Brogioli further explained what he meant by "the DRAM circuit that the claim construction's talking about":

Q. Did Netlist tell the Patent Office that its patents don't cover DRAM?

A. No, that's not what they said.

Q. What did they say?

A. They said that the Rajan is just talking about these DRAM circuits in its reference, and that's different from what the array dies of the patents are.

Tr. 618:24–619:5. Thus, according to Netlist's own expert, the plain meaning of a "DRAM circuit" is any "memory die [that] contains DRAM," but "the DRAM circuit that the claim construction's talking about" is limited to the particular DRAM circuits used in Rajan.

Dr. Brogioli's faux distinction between a "DRAM circuit" and "the DRAM circuit that the claim construction's talking about" was central to his infringement opinion. The sole basis for his opinion that the accused products contain [redacted] But any similarities or differences between Samsung's products and Rajan are irrelevant. Although Netlist expressly asked the Court to limit the disclaimer to just the DRAM circuits in Rajan, Dkt. 76 at 28–29; Dkt. 133 at 1, the Court did not do so, Dkt. 114 at 31–32. Dr. Brogioli's alleged distinction between a "DRAM circuit" and "the DRAM circuit that the claim construction's talking about" is therefore contrary to the Court's claim construction order and does not support the verdict. *See, e.g.*,

[redacted]

Ultravision Techs, LLC v. GoVision LLC, 2021 WL 2144788, at *2 (E.D. Tex. May 26, 2021) ("The Court is the sole arbiter of claim construction disputes. An expert is bound by the claim construction set forth by the Court." (citations omitted)); *see also Exergen*, 575 F.3d at 1321 (reversing jury finding of infringement).

Second, Dr. Brogioli erroneously suggested that the distinction between the claimed "array dies" and the disclaimed "DRAM circuits" is the type of die interconnect used. According to Dr. Brogioli, [redacted] *See* Tr. 495:3–9, 506:2–13; *see also* PDX3.22 (quoting JTX31), PDX3.23 (quoting JTX31 and Jihwan Kim Dep. Tr. 22:5–9). There is no legal or factual basis for this opinion.

Dr. Brogioli's assertion that all "array dies" must use TSVs, not wire bonding, not only lacks any supporting evidence but is contrary to the express teachings of the '060 and '160 patents. The asserted claims require that the "array dies" be connected using two or more "die interconnects." *E.g.*, JTX5 at 22 (23:65–66). The patents unequivocally state that wire bonding is a perfectly acceptable "die interconnect": "Examples of die interconnects include, but are not limited to, through-silicon vias (TSV), conducting rods, *wire bonds*, and pins." *Id.* at 13 (5:51–54); *see also id.* at 14 (8:22–27) ("[T]he die interconnects 220 may include any type of structure for enabling electrical communication between the data conduits 232 and the data ports of the array dies 210," including "*a wire*, a conducting rod, or a conducting trace, to name a few."). While dependent claim 5 of the '060 patent requires the use of TSVs, JTX5 at 22 (24:27–30), the very fact that TSVs are specified as an *additional* limitation of a dependent claim only reinforces the point that the "array dies" in claim 1 do not require the use of TSVs.

[redacted]

Similarly, Dr. Brogioli offered no evidence to support his contention that all "DRAM circuits" use wire bonding. He did not cite a single document that stated—or even suggested—that the definition of a "DRAM circuit" requires that it be connected to other circuits using wire bonding. He only testified that *in Rajan*, the DRAM circuits were [redacted] But Rajan did not coin the term "DRAM circuit." In fact, Dr. Brogioli conceded that the terms "DRAM" and "DRAM circuit" were used in numerous documents, *none of which* required wire bonding, or even mentioned whether they were wire bonded or had TSVs. *See, e.g.*, Tr. 559:8–10 (admitting that Netlist "use[s] DRAM and DRAM circuit interchangeably" in its SEC filings), 559:19–564:6 (admitting several of his own publications related to DRAM do not mention how the dies are connected).[3]

Even accepting all of the evidence presented by Netlist's expert, the most that a reasonable jury could conclude is that Samsung's DRAM circuits are different from the specific DRAM circuits used by Rajan. But that is irrelevant, because the Court rejected Netlist's argument that it disclaimed only Rajan's specific DRAM circuits. Samsung is therefore entitled to JMOL of non-infringement of the '060 and '160 patents.

2. Netlist failed to prove that the accused products have "die interconnects" that are "not in electrical communication with" certain "array dies."

All claims of the '060 and '160 patents require "die interconnect[s]" that are "*not* in electrical communication with" certain "array dies." *E.g.*, JTX5 at 22 (23:66–24:5). Dr. Brogioli admitted that the signal path in the accused products travels across each and every core die. Tr. 606:3–608:7, 609:8–12; *see also* Tr. 1057:18–1064:8 (Robins); JTX16 at 7; JTX15 at 2. Yet he

[3] Dr. Brogioli's testimony is also contrary to Rajan. Far from requiring the use of wire bonding, Rajan explicitly states that the DRAM circuits may be "integrated in any desired manner." JTX63 at 20 (¶ 23); *see also* Tr. 1052:24–1054:10 (Robins).

argued that the claims permit electrical communication to all array dies so long as there was no electrical communication to specific *portions* of the array dies—namely, "data ports" or "receivers." Tr. 493:25–494:9, 519:14–20, 520:4–18, 623:8–19. That argument fails as a matter of law in view of the plain claim language and the specification.

The specification refers to die interconnects being in electrical communication with various parts of a memory product. In some instances, the specification describes electrical communication with the "array dies" themselves. *E.g.*, JTX6 at 13 (4:25–57), 14 (6:26–30), 15 (8:30–32), 16 (9:55–60). In other instances, the specification states that the "die interconnects" are in electrical communication with specific components of the array dies, such as "data ports," "chip select conduits," and "memory cells." JTX6 at 1 (Abstract), 12 (2:22–33), 14 (5:18–20, 5:57–6:22), 15 (8:40–45, 8:63–65), 16 (9:51–55). Although Netlist knew how to describe electrical communication with "data ports," the claims of the '060 and '160 patents specify that the "die interconnects" are "not in electrical communication" with "*array dies*" themselves. The testimony of Netlist's expert that the "die interconnects" are not in electrical communication with "data ports" or "receivers" is therefore insufficient as a matter of law to prove infringement. Because Netlist failed to provide any evidence that the "die interconnects" are not in electrical communication with the alleged "array dies" in the accused products, Samsung is entitled to JMOL.

C. Samsung is entitled to JMOL of non-infringement of the '918 patent because Netlist failed to prove that the accused products have the required "converter circuit."

Netlist asserted that Samsung's SODIMM, UDIMM, and RDIMM products infringe claims 16, 18, and 19 of the '918 patent and that Samsung's RDIMM products also infringe claims 1, 5, and 13. All asserted claims require a "converter circuit" configured to "provide a fourth regulated voltage." JTX3 at 46 (38:31–32), 47 (39:63–64). Samsung is entitled to JMOL of non-infringement because Netlist failed to prove that the accused products have the required "converter circuit."

[redacted]

Because the Court did not construe the term "converter circuit," the plain and ordinary meaning applies. *Broadcom*, 543 F.3d at 696; *see also* Tr. 1301:4–10 (jury instructions). Although Netlist contended that a low drop out ("LDO") regulator in the accused products was the required "converter circuit," Tr. 336:1–2 (Mangione-Smith), Netlist failed to present any evidence that the plain and ordinary meaning of "converter circuit" encompasses an LDO regulator. Instead, Netlist improperly treated the "converter circuit" as a purely functional limitation, arguing that the limitation is satisfied by *anything* that performs the function of converting a voltage. Netlist's expert, Dr. Mangione-Smith, admitted that, when performing his infringement analysis, he "did not look for any structural element beyond the functional requirement that something reduced the voltage." Tr. 416:21–24. Under his purely functional analysis, a "converter circuit" does not require any particular structure or class of structures. He testified that even "a wire can be a converter circuit." Tr. 416:9–12. As long as the circuit "has resistance"—which *every* circuit does—it would be a "converter circuit." *Id. See also* Tr. 1234:22–23 (arguing in Rule 50(a) conference that "[t]he claims impose no structural limitation on the claimed converter circuit").

Throughout the trial, Netlist misled the jury into believing that any circuit that performs the function of converting a voltage satisfies the claim limitation. For example, Dr. Mangione-Smith erroneously stated that a Samsung engineer, Kyunsoo Park, had testified that an LDO regulator is a converter circuit. Tr. 336:18–21. In fact, Mr. Park was never asked about a "converter circuit" and never testified that an LDO regulator is a "converter circuit." Tr. 640:24–644:23. Similarly, during closing arguments, Netlist told the jury that another Samsung engineer, Hun-Joo Lee, "admitted as well that the LDO is a converter." Tr. 1330:11–12. But he said no such thing. To the contrary, Mr. Lee consistently and repeatedly distinguished between converter circuits and LDO regulators:

[redacted]

> Q. Which voltage converter on the PMIC provides the supply voltage for the I2C/I3C communication lines in DDR5 DIMMs?
>
> A. The power that you're referring to is not provided by the voltage converter. It is provided by PMIC by way of the LDO linear regulator.

Tr. 672:4–8. At most, this testimony establishes that an LDO "converts" a voltage. Tr. 644:20–23 (Park); *see also* Tr. 668:10–12 (Lee). But that is insufficient to show that an LDO has the structure of a "converter circuit."[4]

Netlist's assertion that "[t]he claims impose no structural limitation on the claimed converter circuit," Tr. 1234:22–23, is wrong as a matter of law. The Supreme Court has held that purely functional limitations fail to comply with the Patent Act's requirement that the inventor "particularly point out and distinctively claim the part, improvement, or combination which he claims as his invention or discovery." *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 9–10 (1946). Although Congress subsequently amended the Patent Act to permit means-plus-function claims, in so doing, it "struck a balance in allowing patentees to express a claim limitation by reciting a function to be performed rather than by reciting structure for performing that function, while placing specific constraints on how such a limitation is to be construed, namely, by restricting the scope of coverage to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (en banc). If Netlist wanted to argue that

[4] The record establishes that there are structural differences between a "converter circuit" and an LDO regulator. A "converter circuit" includes a combination of an inductor and a switch in which the switch "is continually switching on and off" the voltage "to provide charge to an inductor." Tr. 889:23–890:17 (McAlexander). The "buck-converters," "boost converters," and "buck-boost converters" disclosed in the patent all have this structure. Tr. 889:23–892:19 (McAlexander). By contrast, a "linear regulator works by throwing away the extra energy, and it does that by basically expending that energy through a resistor—a set of resistors which creates [] thermal radiation, if you will. So the energy is discarded in the form of heat." Tr. 889:9–22. Even Netlist's expert admitted that "buck converters and LDOs have fundamentally different characteristics as well as operational benefits and limitations." Tr. 415:5–8.

the "converter circuit" is a functional limitation, it was required to seek a means-plus-function construction and accept the restrictions that such a construction would impose. It did not do so.[5] And in attempting to rely on an impermissible functional construction, Netlist failed to present any evidence that the accused products have the required "converter circuit."

Netlist has likewise failed to prove infringement under the doctrine of equivalents. The sum total of testimony on this issue was a single, conclusory sentence by Dr. Mangione-Smith: "[an LDO is] equivalent because it does the same function which is to convert; it does it the same way, which is to reduce the input voltage; and it achieves the exact same result, which is a regulated output voltage." Tr. 337:15–18. His testimony is facially deficient. For example, Dr. Mangione-Smith does not properly address the "way" prong of the function-way-result test. Instead, he merely repeats the function, replacing "convert" with the synonym "reduce." Such conclusory testimony is insufficient as a matter of law to prove infringement under the doctrine of equivalents. *See Hewlett-Packard*, 340 F.3d at 1322–23.

Moreover, Dr. Mangione-Smith's own testimony contradicts any claim that an LDO regulator is equivalent to a converter circuit. The only converter circuits described in the specification are buck converters, boost converters, and buck-boost converters. JTX3 at 42 (29:23–27). Dr. Mangione-Smith admitted that "buck converters and LDOs have fundamentally different characteristics as well as operational benefits and limitations." Tr. 415:5–8. Among the differences, "a buck converter takes up more space because it requires the use of comparatively bulky passive components such as inductors and capacitors." Tr. 414:21–254. In addition, "a buck

[5] It is too late to construe the term as a means-plus-function limitation. "When issues of claim construction have not been properly raised in connection with the jury instructions, it is improper for the district court to adopt a new or more detailed claim construction in connection with [a] JMOL motion." *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1320 (Fed. Cir. 2003).

converter is more complicated to implement, is more costly to implement, and is more noisy than an LDO." Tr. 415:1–4. He also admitted that LDO regulators and buck converters are not interchangeable. Tr. 421:10–13 (admitting that "a person of skill in the art would understand that you cannot use one or more LDOs as the buck converter[s]" in Figure 16 of the patent). *Id.* These admissions negate his conclusory and unsupported doctrine of equivalents opinion.

D. Samsung is entitled to JMOL of non-infringement of the '054 patent because the accused products do not transition to a "second operable state."

The '054 patent is directed to memory modules containing both volatile memory (*i.e.*, DRAM) and non-volatile memory (*i.e.*, flash). As the patent explains, "[v]olatile memory generally maintains stored information only when it is powered." JTX4 at 29 (3:53–54). In contrast, "[n]on-volatile memory can generally maintain stored information while power is not applied." *Id.* (3:59–60). In order to prevent the loss of data when the power goes out, the memory module of the '054 patent includes a "voltage monitor circuit." When the monitor circuit detects a change in voltage, the memory enters a "second state" in which "data is read from the volatile memory subsystem 1030 and is transferred to the non-volatile memory subsystem 1040." *Id.* at 40 (25:8–31); *see also id.* at 39–40 (24:60–25:7). When power is restored, "the memory system 1010 re-enters the first state," and "data may be transferred back from the non-volatile memory subsystem 1040 to the volatile memory subsystem 1030." *Id.* at 40–41 (26:66–27:1).

Netlist asserted claims 16 and 17 of the '054 patent against Samsung's DDR5 SODIMM, UDIMM, and RDIMM memory modules. Independent claim 16 recites a "memory module comprising," among other things:

> a voltage monitor circuit coupled to an input voltage received from the host system via the interface, the voltage monitor circuit configured to detect an amplitude change in the input voltage, wherein, in response to the voltage monitor detecting an amplitude change in the input voltage, the memory module transitions from a first operable state to a second operable state.

[redacted]

JTX4 at 47 (40:14–20). Claim 17 depends from claim 16.

Samsung is entitled to JMOL of non-infringement because none of the accused Samsung products has the required "second operable state." The parties agreed to construe "operable state" as a "state in which the memory module is operated." The "first operable state" is the "state in which the memory module is operated before transition," and the "second operable state" is the "state in which the memory module is operated after transition." Dkt. 91-1, Ex. A at 4.

The facts are not in dispute. Both sides' experts agreed that in the event of "an amplitude change in the input voltage," the DRAM on the module is disabled. While some low-level circuitry on the module receives power, Dr. Mangione-Smith conceded that "after an overvoltage condition, for example, the DRAMs are turned off." Tr. 379:7–8; *see also* Tr. 378:16–379:10, 436:20–437:6; Tr. 894:5–896:6 (McAlexander). The experts further agreed that, in this state, it is impossible to either write data to, or read data from, the memory, and any data that was stored in the memory is lost forever. Tr. 431:21–432:9 (Mangione-Smith agreeing that the data "gets wiped out" and that the DRAMs "certainly don't operate"); Tr. 896:7–24, 896:25–897:7 (McAlexander).

Despite agreeing that the DRAM memory is completely "turned off" and inaccessible after an overvoltage condition, Dr. Mangione-Smith offered legally flawed testimony that the memory module has entered a "second operable state." His opinion, however, does not provide sufficient evidence to support the verdict. According to Dr. Mangione-Smith, the memory module is in an "operable state" as long as any component in the memory module receives power. Tr. 378:25–380:6 (explaining that the registering clock driver, SPD, temperature sensor, and power management integrated circuit receive power). But the fact that lower-level circuitry still receives power does not mean that the memory module is in a "second operable state," or "is operated," as the Court's construction requires.

[redacted]

Dr. Mangione-Smith's conclusory testimony that "operated" means nothing more than "powered" does not amount to substantial evidence. *See Kim*, 465 F.3d at 1320 (affirming JMOL of non-infringement where "conclusory [expert] testimony" was the basis for infringement); *Dominion Energy*, 725 F. App'x at 986 (reversing denial of JMOL motion). Notably, he presented no explanation as to why "powered" means "operated" under the term's plain meaning. Nor does the specification support such an interpretation, as every embodiment of the '054 patent shows that, in each "operable state," the memory module takes affirmative actions—namely, it transfers data to or from the memory subsystems. JTX4 at 40 (25:58–66); *see also id*. at 39–42 (24:35–29:64). No reasonable jury could have found that the memory module is in an "operable state" when the memory is turned off, thereby erasing the contents and rendering the memory unusable.

The record uniformly shows that in the alleged "second operable state," the module simply listens for a command to turn on the module. Dr. Mangione-Smith confirmed that the low-level components receive power only because "otherwise, there would be no way for the host processor to turn the DIMM back on." Tr. 379:20–380:1; *see also* Tr. 968:18–21, 970:13–971:1 (McAlexander). Far from being evidence of infringement, his testimony *confirms* that in the putative "second operable state," the memory module is, in fact, turned off. Because Netlist failed to provide substantial evidence that the accused products have a "second operable state," Samsung is entitled to JMOL of non-infringement.

E. Samsung is entitled to JMOL of non-infringement of the '918, '054, and '339 patents because Netlist failed to present evidence that any single Samsung product satisfies every limitation of any of the asserted claims.

As the Court has observed, Netlist declined to rely on the standards to show infringement of the '918, '054, and '339 patents and instead "asserted infringement based on a comparison of the claims of the asserted patents to Samsung's accused products." Dkt. 550 at 23–25. Having made this decision, Netlist had to prove "that every limitation recited in the claim appear[s] in the

[redacted]

accused device, *i.e.*, that the properly construed claim reads on the accused device exactly." *Cortland Line Co. v. Orvis Co.*, 203 F.3d 1351, 1358 (Fed. Cir. 2000). Netlist did not do so. Instead, it took a mix-and-match approach, alleging that one product meets *some* limitations only to argue that a different product satisfies *other* limitations of the same claim. The parties did not stipulate that Netlist could rely on different products to satisfy the same claim, or that any one product was representative of all other products, and Netlist deliberately chose not to offer evidence that all products are the same because they comply with the standards. Because Netlist did not prove that any single accused product—let alone *all* accused products—satisfies each limitation of any asserted claim, Samsung is entitled to JMOL.

1. Netlist's infringement arguments for the '918 and '054 patents rely on features of different PMICs used in different Samsung products.

Netlist's infringement theories for the '918 and '054 patents focused primarily on the Power Management Integrated Circuits ("PMICs") used in the accused DDR5 products. Across its entire line of DDR5 memories, consisting of 143 different product models, *see* JTX23, Samsung uses numerous different PMICs, supplied by at least four different companies: Samsung, Texas Instruments, Renesas, and Monolithic Power Solutions. Tr. 422:19–423:10 (Mangione-Smith). But Netlist only introduced evidence as to three PMICs: the Samsung S2FPD01, Samsung S2FPC01, and Renesas P8911. *See generally* Tr. 331:16–347:1, 349:9–350:10, 372:18–376:10, 378:5–381:5 (Mangione-Smith). Netlist's approach suffered from at least two fatal errors.

First, Netlist presented no infringement evidence whatsoever for accused products that contain PMICs other than the three noted above. For example, even though Dr. Mangione-Smith admitted that some of the accused products use Texas Instruments or Monolithic Power Solutions chips, Tr. 422:19–423:10, he did not offer any testimony regarding the structure or operation of these PMICs. "A patentee . . . cannot simply assume that all of the accused products are like the

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one plaintiff's expert tested and thereby shift to the accused infringer the burden to show that is not the case." *Medtronic Vascular, Inc. v. Boston Sci. Corp.*, 2008 WL 2744909, at *3 (E.D. Tex. July 11, 2008) (cleaned up). Netlist thus failed to prove that all accused products infringe. This failure requires vacating the damages award, which was based on sales of all accused products.

Second, even as to the three PMICs that were discussed at trial, Netlist's expert relied on different PMICs to satisfy different limitations. Dr. Mangione-Smith began his opinions with claim 16 of the '918 patent, which requires, among other things:

> first, second, and third buck converters configured to receive a pre-regulated input voltage and to produce first, second and third regulated voltages, respectively;
>
> a converter circuit configured to reduce the pre-regulated input voltage to provide a fourth regulated voltage,

JTX3 at 47 (39:60–64). Dr. Mangione-Smith opined that the Samsung S2FPD01 PMIC has the required buck converters and an LDO regulator that meets the requirement of the "converter circuit." Tr. 334:24–335:7 (citing JTX11, the datasheet for the S2FPD01). But when discussing whether the PMIC was "configured to receive a pre-regulated input voltage," Dr. Mangione-Smith relied on a different PMIC, the Samsung S2FPC01, to support his opinion. Tr. 335:19–25 (citing JTX12, the datasheet for the S2FPC01). He never opined that either PMIC had the required "buck converters" *and* was "configured to receive a pre-regulated input voltage."

Dr. Mangione-Smith's opinions regarding the Renesas P8911 PMIC were similarly deficient. He opined that the Renesas PMIC has an LDO regulator that satisfies the "converter circuit" limitation. Tr. 337:2–10. But he never asserted that the Renesas PMIC has the required buck converters or that it is "configured to receive a pre-regulated input voltage." Netlist therefore failed to prove that any of the accused DDR5 products infringe claim 16 or dependent claims 17 and 18. *See Geovector Corp. v. Samsung Elecs. Co.*, 2017 WL 76950, at *4 (N.D. Cal. Jan. 9,

2017) ("This hodgepodge of different attributes from various different accused products and third-party sources is insufficient to chart a single product against all elements of Claim 1.").

Netlist's failure of proof also infects the remaining asserted claims of the '918 patent and the '054 patent. For claim 1 of the '918 patent, Dr. Mangione-Smith referred back to his opinions with respect to claim 16. Tr. 342:7–344:16. Netlist alleged that Samsung's RDIMM products infringe claim 1, Tr. 342:7–9, but Netlist failed to offer any evidence as to which PMICs are used in the RDIMM products.[6] Netlist therefore failed to prove that Samsung infringes claim 1 or dependent claims 5 and 13. Similarly, Dr. Mangione-Smith's opinions with respect to claims 16 and 17 of the '054 patent were nearly identical to his opinions concerning claim 16 of the '918 patent. Tr. 345:13–346:4. He testified that "quite a bit" of the evidence overlapped and he had already "talked about the first, second, and third buck converters" and "the converter circuit as well." *Id.* But as with the '918 patent, he did not identify a single Samsung product having the specific PMIC on which his opinions depended. Netlist has therefore failed to present any evidence that any of the accused DDR5 products infringes any asserted claim of the '918 and '054 patents.

2. Netlist's infringement argument on the '339 patent improperly relied on datasheets for third-party buffers without any evidence that those buffers are used in the accused Samsung LRDIMMs.

Netlist took the same improper mix-and-match approach to the '339 patent. Claim 1 recites an "N-bit-wide memory module" comprising, among other things, "a printed circuit board," "double data rate dynamic random access memory (DDR DRAM) devices," "a module controller," and "a plurality of byte-wise buffers." JTX2 at 32 (19:9–67). As a threshold matter, Netlist failed

[6] Dr. Mangione-Smith cited a datasheet to support his opinions regarding Samsung's RDIMM products. Tr. 337:23–338:4, 343:8–18. But the datasheet shows that different models of RDIMMs, with different part numbers, use different PMICs. JTX9 at 6 n.1. The evidence thus shows that not all of the accused products have the specific PMIC on which Dr. Mangione-Smith relied.

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to offer *any* evidence as to most of the accused products. Netlist accused at least 90 different DDR4 LRDIMM models of infringing the '339 patent. *See* JTX23. But Netlist presented evidence as to only two models: the M386A8K40BM1 and M386A8K40BM2. Tr. 387:17–390:25, 394:20–395:12 (Mangione-Smith citing JTX28, the M386A8K40BM1 and M386A8K40BM2 datasheet). Samsung is therefore entitled to JMOL that no other model infringes the asserted claims of the '339 patent. *See Medtronic Vascular*, 2008 WL 2744909, at *3. Because the damages award was based on all DDR4 LRDIMMs being found to infringe, the award must be vacated.

Netlist's evidence also fails as to the M386A8K40BM1 and M386A8K40BM2 because Netlist failed to present any evidence that these products have the claimed "data buffers." Dr. Mangione-Smith relied on the datasheets for these products to support his opinions that the products satisfy the printed circuit board, DDR DRAM, and module controller limitations. Tr. 387:17–390:25, 394:20–395:12 (citing JTX28). When it came to whether the products have the required "data buffers," however, he pointed to an integrated circuit manufactured by third-party Renesas, the 4DB0232KC2. Tr. 391:1–394:19, 395:13–398:4 (referencing JTX20). But Netlist did not present any evidence that the M386A8K40BM1 or M386A8K40BM2—or any other accused product—contains a Renesas 4DB0232KC2 data buffer.

Netlist's failure of proof is evident from Dr. Mangione-Smith's demonstratives. For example, the following slide purported to show how Samsung's LRDIMM products have the required "buffers" disposed on the PCB:

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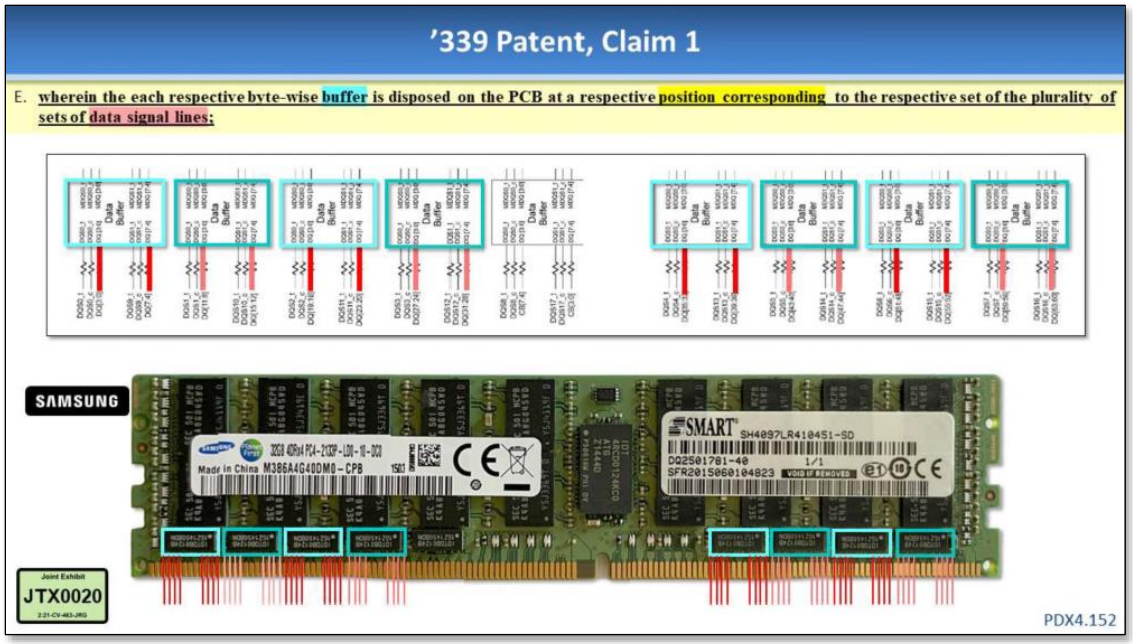

PDX4.152; *see also* Tr. 394:21–395:12 (discussing same). Dr. Mangione-Smith highlighted the alleged "buffers" in turquoise rectangles. But Dr. Mangione-Smith's own slide shows that the module does *not* have Renesas 4DB0232KC2 buffers.

PDX4.152 (magnified and rotated). As can be clearly seen, this module has IDTDB0124B data buffers. Dr. Mangione-Smith, however, did not offer any opinions regarding the IDTDB0124B buffer, nor did Netlist proffer any other evidence as to how the IDTDB0124B buffer meets the requirements of claim 1 of the '339 patent.

Without any evidence that the Samsung M386A8K40BM1 and M386A8K40BM2 products contain Renesas 4DB0232KC2 buffers, Dr. Mangione-Smith's testimony regarding those buffers is irrelevant. Without any evidence that the buffers actually used in Samsung's products

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satisfy the requirements of claim 1, Netlist has failed to carry its burden of proof. Since asserted claims 8 and 9 depend from claim 1, Netlist has failed to prove that any Samsung product infringes any asserted claim of the '339 patent.

F. In the alternative, the Court should order a new trial on infringement.

If the Court does not grant JMOL of non-infringement, it should, in the alternative, grant a new trial because the verdict was "against the great weight of the evidence" and was based on Netlist's improper and highly prejudicial arguments. *Cates*, 431 F.3d at 460. "It is beyond dispute that claim construction issues are to be decided by the court. It is thus improper for an expert witness to testify before the jury regarding claim construction." *ATEN Int'l Co. v. Uniclass Tech. Co.*, 932 F.3d 1364, 1370 (Fed. Cir. 2019). Moreover, the parties and their experts are required to apply the Court's constructions. *Exergen*, 575 F.3d at 1321 ("No party may contradict the court's construction to a jury."). As described above, Netlist repeatedly violated both of these principles.

With respect to the '339 patent, Netlist ignored the Court's "fork-in-the-road" construction of the term "drive" and failed to apply the plain meaning of "byte-wise data path." For the '060 and '160 patents, Netlist's expert explicitly offered claim construction opinions by testifying about what the Netlist told the patent office about the Rajan reference. Tr. 618:24–619:5 (Brogioli). By arguing that "DRAM circuit" should be limited to the specific circuits used in Rajan, [redacted]

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For the '918 patent, Netlist treated "converter circuit" as a purely functional limitation without adhering to the requirements of 35 U.S.C. § 112, ¶ 6, and otherwise failed to show that an LDO is a "converter circuit" under the term's plain meaning. Finally, for the '054 patent, Netlist failed to apply the construction of "operable state."

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Netlist's improper arguments were highly prejudicial. As the Federal Circuit has explained, "[t]he risk of confusing the jury is high when experts opine on claim construction before the jury." *CytoLogix Corp. v. Ventana Med. Sys.*, 424 F.3d 1168, 1172 (Fed. Cir. 2005). This prejudice cannot be cured merely by instructing the jury to apply the Court's constructions. *Id.* Here, the cumulative effect of Netlist's repeated and consistent failures to apply the Court's claim constructions undercuts any presumption that the jury followed the Court's instructions and applied the Court's constructions and, to the contrary, strongly suggests that the jury was confused by the different constructions used by Netlist and its experts. *See O2 Micro Int'l, Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1358 (Fed. Cir. 2008) (reversing where claim construction arguments "were improperly submitted to the jury"). With respect to the '339 patent, for example, Netlist's expert admitted that if "byte-wise" means eight bits, he had not shown that the accused products have multiple byte-wise data paths. Tr. 455:3–9 (Mangione-Smith). Netlist's failure to apply the Court's construction was therefore outcome determinative, requiring, at a minimum, a new trial.

II. Samsung is entitled to JMOL, or alternatively a new trial, on invalidity with respect to the '918, '054, and '339 patents.

Samsung proved by clear and convincing evidence that the asserted claims of the '918, '054, and '339 patents are invalid because they fail to comply with the written description requirement of 35 U.S.C. § 112, ¶ 1. Netlist failed to present any rebuttal case on invalidity, and the record does not otherwise contain sufficient evidence to support the verdict of no invalidity.

A patent's written description "must convey with reasonable clarity to those skilled in the art that [the inventor] was in possession of the invention." *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000) (cleaned up). "Adequate description of the invention guards against the inventor's overreaching by insisting that he recount his invention in such detail that his

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future claims can be determined to be encompassed within his original creation." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991). As a result, "a broad claim is invalid when the entirety of the specification clearly indicates that the invention is of a much narrower scope." *Cooper Cameron Corp. v. Kvaerner Oilfield Prods.*, 291 F.3d 1317, 1323 (Fed. Cir. 2002).

A. Samsung is entitled to JMOL that the asserted claims of the '918 and '054 patents are invalid for lack of written description support.

The asserted claims of the '918 and '054 patents lack written description support as a matter of law because the claims do not cover the hybrid volatile and non-volatile memory module that is the singular focus of the specification. In addition, the claims of the '918 patent are independently invalid because the specification fails to support the overbroad interpretation of the "converter circuit" term required by Netlist's infringement arguments.

1. The asserted claims of the '918 and '054 patents extend beyond the hybrid memory module required by the specification.

In 2008, Netlist filed a patent application for a hybrid memory module that transfers data between volatile DRAM memory and non-volatile flash memory on the same module. In December 2020 and May 2021, after observing the development of DDR5 products, Netlist filed the sixth and seventh continuations of that application in an attempt to claim memory modules without any non-volatile memory at all. Those continuations issued as the '918 and '054 patents, respectively. As the evidence at trial clearly demonstrated, the asserted claims of these patents are not supported by the written description.

a. According to the specification, the alleged invention is a hybrid memory module.

The '918 and '054 patents are both titled "Flash-DRAM Hybrid Memory Module," JTX3 at 1; JTX4 at 1, and their shared specification describes the technical field as related "particularly[] to devices that employ different types of memory devices such as combinations of flash and

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random access memories"—*i.e.*, hybrid memory modules. JTX3 at 28 (1:66–2:2); *see also* Tr. 899:24–900:3 (McAlexander) ("Both patents are directed to a hybrid memory module that includes both flash and DRAM on that module."); Tr. 900:7–14 (McAlexander). The specification explains that "[v]olatile memory [e.g., DRAM] generally maintains stored information only when it is powered," JTX3 at 29 (3:53–54), but that "[n]on-volatile memory [e.g., flash] can generally maintain stored information while power is not applied," *id.* (3:59–61). The hybrid module proposed in the patents enables the efficient transfer of data from volatile memory to non-volatile memory when needed (*e.g.*, in the event of a power failure). *See id.* (3:61–62) ("[I]t can therefore be useful to backup volatile memory using non-volatile memory"); *id.* at 29–31 (3:66–8:50); Tr. 871:12–16, 873:10–875:24 (McAlexander).

The specification makes plain that this "Flash-DRAM Hybrid Memory Module" is more than the title of the patents—it *is* the alleged invention. The patents identify a single problem in the prior art: the difficulty of rapidly transferring data between volatile and non-volatile memory. JTX3 at 28–29 (2:6–3:52); Tr. 873:10–875:24, 900:15–903:25 (McAlexander). The specification explains that prior art approaches suffered from an "information transfer bottleneck due to the inability of the high speed CPU . . . to efficiently transfer data" between volatile DRAM memory and non-volatile memory elsewhere in the computer, JTX3 at 28 (2:27–33), and these bottlenecks become problematic, for instance, when data stored in the DRAMs must be transferred to non-volatile memory during power failures or other exigencies, *id*. at 29 (3:46–62), 33 (11:15–23).

As Mr. McAlexander testified, the specification proposes a flash-DRAM hybrid memory module as the singular solution to this problem:

> What it describes as the solution to that bottleneck is three-fold: One, move the flash memory onto the same module as the DRAM. As a result of moving them closer together, you are able to have a more direct communication of data between the two so that you can then, under a controller that controls this data flow

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> operation, you are able to do a back-up of that information in the case of a pending power loss.

Tr. 874:8–14; *see also* JTX3 at 32 (10:52–57) (describing "arrangements for improving memory access rates" and, in particular, a "Flash-DRAM hybrid DIMM . . . with integrated Flash and DRAM"), 32–33 (10:58–12:24); Tr. 902:14–903:5 (McAlexander). In contrast to the prior art (below, left), which had non-volatile memory (*e.g.*, a hard drive) separate and apart from a DIMM consisting of volatile DRAM memory, the specification proposes (below, right) a single DIMM with integrated non-volatile flash (302) and volatile DRAM (304) memories, and a controller (306) for facilitating fast data transfer (308) between these different types of memory. JTX3 at 28 (2:28–54), 33 (11:11–40); Tr. 900:15–903:5 (McAlexander); Tr. 244:12–245:18 (Milton).

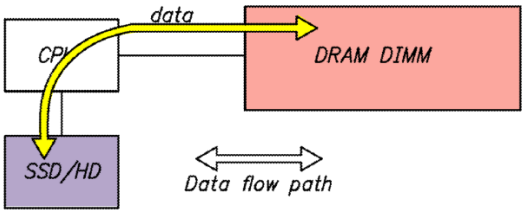

FIG. 1
(PRIOR ART)

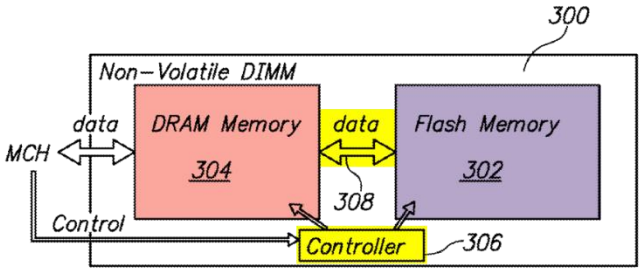

FIG. 3A

JTX3 at 6 (Figs. 1 and 3A) (annotated).

Mr. Milton, the only named inventor to testify, admitted that "[t]he concept [he] invented was putting that all on one module." Tr. 244:22–24. He further conceded that this hybrid module is a "focus of the patent," Tr. 239:23–240:2, and "the vast proportion of this specification is directed to that invention," Tr. 247:25–248:9; *see also* Tr. 242:2–243:6.

b. Netlist improperly broadened the claims of the '918 and '054 patents beyond the invention described.

The '918 and '054 patents do not claim the hybrid memory module described in the specification. Their claims, added more than a decade after the application to which they claim priority, instead recite a new alleged invention, which Netlist has described as "intelligent on-

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module power management" and which does not require a hybrid module capable of transferring data between volatile and non-volatile memory. *See, e.g.*, Tr. 195:3–21 (Milton). Only one asserted claim even mentions non-volatile memory (claim 19 of the '918 patent), but Netlist contends this claim is satisfied by writing configuration information to the PMIC in the accused products, rather than writing user data to discrete non-volatile memory, as described in the specification. Tr. 431:1–15 (Mangione-Smith agreeing that the embedded flash in the PMIC "does not back up the information in the DRAM chips"); *see also* Tr. 341:3–342:6, 375:4–18 (Mangione-Smith). Thus, under Netlist's interpretation, even claim 19 does not reflect the hybrid memory module required by the specification. Tr. 1035:1–1036:16 (McAlexander).

By dropping the hybrid memory structure required by the written description, Netlist improperly expanded the scope of the asserted claims to cover non-hybrid devices. The claims are therefore invalid because they "exceed in scope the subject matter that [the] inventor [] chose to disclose to the public in the written description." *Atl. Rsch. Mktg. Sys. v. Troy*, 659 F.3d 1345, 1355 (Fed. Cir. 2011); *see also, e.g.*, *ICU Med., Inc. v. Alaris Med. Sys.*, 558 F.3d 1368, 1377–79 (Fed. Cir. 2009) (rejecting "contention that the figures and descriptions that include [a feature] somehow demonstrate that the inventor possessed a medical valve that operated without [the feature]"); *LizardTech, Inc. v. Earth Res. Mapping, PTY, Inc.*, 424 F.3d 1336, 1344–45 (Fed. Cir. 2005) (holding invalid claim "directed to creating [image compression] coefficients generically" because specification was "directed at [] a particular method for creating a [compression coefficient]"); *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998) (holding invalid claims that did not place recliner controls on the console because "[t]he original disclosure clearly identifie[d] the console as the only possible location for the controls").

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Courts routinely hold that claims lack written description support as a matter of law, including in cases where the claims have been improperly broadened. *See, e.g.*, *PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1247 (Fed. Cir. 2002) (reversing district court's denial of JMOL for invalidity based on lack of written description); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158 (Fed. Cir. 1998) (reversing district court's denial of JMOL, as the "patent's specification describes only one cup—a conical cup—and thus does not provide sufficient support for claims . . . which are generic as to the shape of the cup"); *see also LizardTech*, 424 F.3d at 1346–47 (affirming summary judgment); *Atl. Rsch. Mktg.*, 659 F.3d at 1355 (affirming summary judgment). In *PIN/NIP*, for instance, "nothing in the specification [of the asserted patent] indicate[d] that the invention [wa]s anything other than a *mixture* of two chemicals" used in cultivating potatoes. 304 F.3d at 1247 (emphasis in original). But the patentee had added a claim in a continuation patent "to encompass separate applications" of those chemicals. *Id.* The Federal Circuit held the claim invalid, explaining that "the originally filed application, which is devoid of any mention or even implication that the two chemicals can be applied" separately, "does not support the later-added claim." *Id.* at 1247–48.

Here, the specification of the '918 and '054 patents is similarly devoid of support for claims that do not require both volatile and non-volatile memory on a DIMM for purposes of data transfer between the two. In fact, as discussed above, the specification teaches *against* prior art embodiments without non-volatile memory on the DIMM due to data transfer bottlenecks. Where, as here, "the specification specifically distinguishes the prior art as inferior and touts the advantages of the [invention] . . . [s]uch statements make clear that the [] patent discloses *only* [the invention] and nothing broader." *Tronzo*, 156 F.3d at 1159 (emphasis in original); *see also Gentry*

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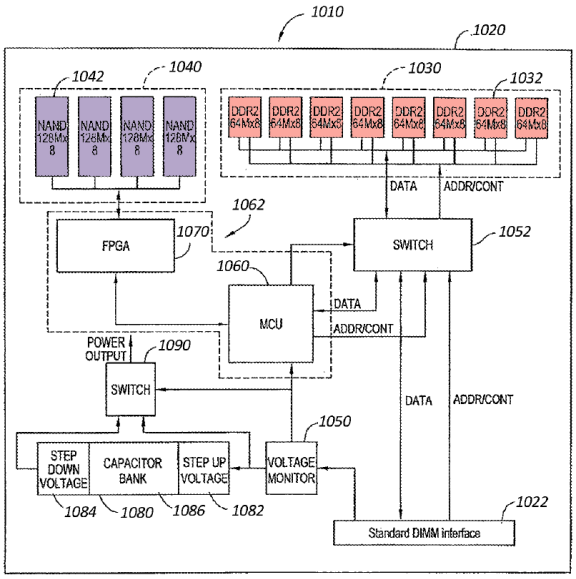
Gallery, 134 F.3d at 1479 (holding claims invalid where they were contrary to "the stated purpose of the invention").

c. Netlist's evidence fails as a matter of law to sustain the verdict.

Netlist failed to identify any embodiments in the written description on which the jury could reasonably rely as support for the non-hybrid module recited in the asserted claims. Instead, Netlist offered testimony that contradicted the shared specification of the '918 and '054 patents. Such testimony is legally insufficient to sustain the verdict. *See Aqua-Aerobic Sys., Inc. v. Aerators Inc.*, 211 F.3d 1241, 1245 (Fed. Cir. 2000) ("Expert testimony . . . may not correct errors or erase limitations or otherwise diverge from the description of the invention as contained in the patent documents.").

First, Netlist argued that the specification supports its characterization of the claimed invention as an "intelligent on-module power management" system. Tr. 306:18–307:5 (Milton); Tr. 1376:25–1377:2 (closing). But the portion of the specification on which Netlist relies describes the memory system 1010 shown in Figure 12, annotated and reproduced to the right, which includes on-module non-volatile memory 1040. JTX3 at 39 (23:1–27). Therefore, this passage cannot possibly provide support for a non-hybrid memory module.



JTX3 at 16 (Fig. 12) (annotated)

Second, Netlist's witnesses testified that Figures 15A and 15B of the specification do not show non-volatile memory. Tr. 307:12–22 (Milton); Tr. 470:2–16 (Mangione-Smith). The specification, however, explains that these figures depict only the "volatile memory subsystem" portion of a complete hybrid module:

[redacted]

> In certain embodiments, *the volatile memory subsystem 1030* can comprise a registered DIMM subsystem comprising one or more registers 1160 and a plurality of DRAM elements 1180, *as schematically illustrated by FIG. 15A* . . . . The memory system 1010 further comprises one or more switches 1170 coupled to the one or more registers 1160 and to the plurality of DRAM elements 1180 as schematically illustrated by FIG. 15A . . . . In certain other embodiments, *as schematically illustrated by FIG. 15B*, the one or more switches 1174 are also coupled to the one or more registers 1160 and to a power source 1162 for the one or more registers 1160 . . . thereby selectively operatively *coupling the volatile memory subsystem 1030* to the host system . . . .

JTX3 at 39 (23:41–64). Because this "volatile memory subsystem" 1030 is a *component* of a memory module 1010 that also includes "a non-volatile memory subsystem 1040," JTX3 at 38 (21:14–20), Figures 15A and 15B are entirely consistent with the requirement that the alleged invention have both volatile and non-volatile memory. Tr. 878:17–880:2 (McAlexander).

Indeed, Netlist's witnesses did *not* contest that Figures 15A and 15B show only a volatile memory subsystem of a hybrid memory module. Tr. 307:12–17 (Milton agreeing that Figures 15A and 15B are "designs in which flash is not present on the memory *subsystem*"); Tr. 470:2–16 (Mangione-Smith asserting only that there is no non-volatile memory shown in Figures 15A and 15B, without addressing the full memory module). Given the clear language of the specification and Mr. McAlexander's unrebutted testimony, *see* Tr. 878:17–880:2, a jury could not reasonably conclude that Figures 15A and 15B provide written description support for the claims.[7]

Third, Netlist's witnesses testified that the specification discloses an embodiment in which the non-volatile memory is a hard disk separate from the memory module. Tr. 196:24–197:22

[7] Netlist questioned Mr. McAlexander about a one-sentence synopsis of these figures in the "Brief Description of the Drawings" that does not mention non-volatile memory. Tr. 988:5–989:11. But this sentence is consistent with the subsequent, more detailed descriptions that make clear the figures depict the volatile memory subsystem of a hybrid module that also includes a non-volatile memory subsystem. JTX3 at 32 (9:35–38) (referring to "memory systems having volatile memory subsystems"). Moreover, this one-sentence description does not control over those more detailed descriptions. *See In re Lew*, 257 F. App'x 281, 285 (Fed. Cir. 2007) (noting that "detailed descriptions of [] figures" in the specification control over the "brief description of the drawings").

[redacted]

(Milton) (discussing JTX3 at 41 (27:41–58)); Tr. 469:13–24 (Mangione-Smith). But as Mr. McAlexander testified, this excerpt actually discloses that a hybrid memory module (*i.e.*, memory system 1010) with both volatile and non-volatile memory may be operated as a cache that writes to an off-module hard disk, which would be needed for storing larger files. Tr. 1033:11–1034:2; JTX3 at 41 (27:41–46). This passage does not indicate that the off-module hard disk replaces the non-volatile flash memory 1040 on the memory module 1010. To the contrary, the excerpt states this "non-volatile storage" is "not part of the memory system 1010," JTX3 at 41 (27:45–46), and discloses that "the memory system 1010 will still be able to recover the data efficiently in the event of a power outage because of the backup and restore capabilities described herein," *id.* (27:53–56)—that is, the backup capabilities provided by the on-module flash memory. Because the plain text of the specification contradicts Netlist's testimony that the excerpt discloses a memory module without non-volatile memory, this testimony does not constitute substantial evidence that the asserted claims have written description support. *See PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1361 (Fed. Cir. 2007) (reversing denial of motion for JMOL of invalidity where the expert testimony "cannot be reconciled with statements made by the inventors in the joint specification").

None of the excerpts discussed above supports the jury verdict for an additional reason: Netlist failed to present evidence that any of these alleged non-hybrid embodiments included all claim limitations or could otherwise be combined with other disclosures in the specification to form the claimed memory modules. As the Federal Circuit has held, a patentee cannot "derive written description support from an amalgam of disclosures plucked selectively" from the specification. *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1349 (Fed. Cir. 2013); *see also Purdue Pharma L.P. v. Recro Tech., LLC*, 694 F. App'x 794, 797 (Fed. Cir.

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2017) ("To the extent that [the patent-holder] contends that a person of skill in the art would isolate and combine aspects from various embodiments in the specifications . . . to obtain the claimed invention, [the patent-holder] relies upon the wrong test."). Rather, the specification must contain "'blaze marks' that would lead an ordinarily skilled investigator toward" the combination of those disclosures. *Novozymes A/S*, 723 F.3d at 1349. Because Netlist offered no evidence that a person of ordinary skill in the art ("POSITA") would know to combine the alleged non-hybrid embodiments with other disclosures in the manner required by the asserted claims, the jury could not reasonably find that those embodiments provide written description support. *Id*. at 1348–51 (affirming JMOL that asserted claims were invalid for lack of written description); *Flash-Control, LLC v. Intel Corp.*, 2021 WL 2944592, at *4 (Fed. Cir. July 14, 2021) (affirming summary judgment that claims were invalid for lack of written description and noting that a "patent owner cannot show written description support by picking and choosing claim elements from different embodiments that are never linked together in the specification").

2. The specification fails to describe the "converter circuit" under Netlist's overbroad interpretation of that claim limitation.

Substantial evidence does not support the jury's finding of no invalidity on the '918 patent for a second, independent reason: the trial evidence conclusively establishes that the specification does not convey use of an LDO as the "converter circuit" required by the asserted claims. JTX3 at 46 (38:31–32), 47 (39:63–64). As set forth above, Dr. Mangione-Smith testified that the "converter circuit" term is broad enough to capture "something [that] converts voltage," Tr. 416:25–417:2, including an LDO. While this opinion fails to support the verdict as a matter of law, *see supra* § I.C, if the Court accepts Netlist's infringement theory, all of the asserted claims of the '918 patent must fail for lack of written description. *See Rivera v. Int'l Trade Comm'n*, 857 F.3d 1315, 1319 (Fed. Cir. 2017) (analyzing written description argument based on plaintiff's claim interpretation).

[redacted]

As Dr. Mangione-Smith conceded, the specification does not disclose the use of an LDO for voltage regulation. Tr. 419:5–12. Instead, the specification describes *only* buck-converters, boost converters, and buck-boost converter circuits for voltage regulation. JTX3 at 42 (29:28–32) (referring to "converter circuits such as buck-converters, boost converters, and buck-boost converter circuits"); *id.* at 21 (Fig. 16); Tr. 876:4–877:13 (McAlexander); Tr. 419:16–420:22 (Mangione-Smith). With respect to these disclosed buck, boost, and buck-boost converters, Dr. Mangione-Smith acknowledged that a POSITA "would understand you ***cannot*** use an LDO in place of the buck-boost converter," Tr. 421:17–20, and that "buck converters and LDOs have fundamentally different characteristics as well as operational benefits and limitations," Tr. 415:5–7. *See also* Tr. 422:1–6 (Mangione-Smith admitting that a POSITA "*would not* be able to reach a conclusion regarding whether you can or cannot replace any one of [the disclosed] buck converters shown with an LDO"). Thus, there is no substantial evidence for the jury's finding of no invalidity with respect to the '918 patent.

B. The asserted claims of the '339 patent are invalid for lack of written description under Netlist's infringement theory.

The asserted claims of the '339 patent require data buffers that "actively drive" data through a "fork-in-the-road," JTX2 at 32 (19:53–61), but Netlist accuses products that do not "actively drive" and that lack any "fork-in-the-road." While Netlist's attempt to stretch the claims over the accused products fails as a matter of law, *see supra* § I.A, Netlist's construction of the claims—if accepted—renders those claims invalid for lack of written description.

Dr. Mangione-Smith asserted that the claims are met by "a single byte-wise data path in the byte-wise buffer," without a "fork-in-the-road." Tr. 448:25–449:4. But in "adopt[ing] the so-called fork-in-the-road approach," the Court recognized that "the ***sole embodiment*** describing path selection during a write operation disables one path within the buffers when the other path is

[redacted]

enabled." Dkt. 114 at 10 (citing JTX2 at 29–31 (14:59–15:4, 16:1–18, 17:30–44)). Since that sole embodiment clearly does not contemplate performance by a single data path, a reasonable jury could conclude only that "the specification for the '339 patent does not support a practice by a single data path." Tr. 925:1–4 (McAlexander); *see also* Tr. 928:11–14 (McAlexander).

Netlist failed to offer any support for its assertion that the '339 patent discloses embodiments without a "fork-in-the-road." Nor did Netlist provide any evidence that the written description supports "actively driving" data outside the data buffer, despite alleging infringement on that basis. *See supra* § I.A.2. Accordingly, under Netlist's infringement theory, the asserted claims are invalid because they "exceed in scope the subject matter that [the] inventor [] chose to disclose to the public in the written description." *Atl. Rsch. Mktg.*, 659 F.3d at 1355.

C. Alternatively, the Court should grant a new trial on written description.

If the Court does not grant Samsung JMOL on written description, the Court should grant a new trial. First, for the reasons explained above, the jury's verdict stands against the clear weight of the evidence. Second, Samsung asked the Court to instruct the jury that a "broad claim is invalid when the specification clearly indicates that the invention is of a much narrower scope," following the Federal Circuit's language in *Cooper Cameron Corp.*, 291 F.3d at 1322, but the Court rejected that request. Tr. 1280:22–1281:15 (closing). Because this error prevented the jury from adequately considering a dispositive issue in the case, a new trial on invalidity is necessary. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 843 F.3d 1315, 1329 (Fed. Cir. 2016) (vacating induced infringement verdict because "the district court's jury instruction misstated the law . . . in a way that prejudiced [defendants].").

III. Samsung is entitled to JMOL, or alternatively a new trial, on the issue of damages.

Netlist presented evidence of alleged damages through its expert Mr. Kennedy. He asserted that Samsung would agree, at a hypothetical negotiation, to pay Netlist a royalty equating to 100%

[redacted]

of the revenue associated with the allegedly infringing features, which he calculated as the difference between [redacted] Mr. Kennedy told the jury that such a royalty would amount to $404,200,000. Tr. 715:11–18. To support this extraordinary sum, Mr. Kennedy relied on the non-comparable Rambus license to show that "Samsung agreed to pay $1.1 billion" after Rambus terminated a license and accused Samsung of infringement. Tr. 691:15–23; *see also* Tr. 741:20–23. Remarkably, Mr. Kennedy disregarded comparable licenses to the asserted patents (as part of a portfolio license) for much lower sums to Samsung and Samsung's competitor SK hynix. *See, e.g.*, Tr. 692:15–19. The jury awarded $303,150,000, or 75% of Netlist's request. Dkt. 479 at 7.

For the reasons discussed below, the jury's damages award is premised on fundamentally flawed and facially unreasonable assumptions and arguments. As a result, the Court should grant Samsung JMOL that Netlist is entitled to no damages. *See Promega Corp. v. Life Techs. Corp.*, 875 F.3d 651, 666 (Fed. Cir. 2017) ("[A] patent owner may waive its right to a damages award when it deliberately abandons valid theories of recovery in a singular pursuit of an ultimately invalid damages theory."). Alternatively, the Court should grant JMOL that the only legally proper award supported by the evidence is $19.3 million—the figure offered by Samsung's expert Mr. Meyer—or should grant a new trial conditional on remittitur of the damages award to that amount.

A. Samsung is entitled to JMOL of no damages.

The jury's $303 million damages award is unsupported for multiple independent reasons, each of which was raised in Samsung's Rule 50(a) motion. Dkt. 477.

1. The award is premised on the flawed and unsupported assumption that Samsung would agree to pay 100% of the revenue supposedly conferred by the asserted patents.

The hypothetical negotiation is a legal construct that "attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before

[redacted]

infringement began." *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009). The "basic question" asked by the hypothetical negotiation is "if, on the eve of infringement, a willing licensor and licensee had entered into an agreement instead of allowing infringement of the patent to take place, what would that agreement be?" *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 76 (Fed. Cir. 2012).

No reasonable jury could find that Samsung would have agreed to Netlist's proposed royalty. Mr. Kennedy admitted [redacted] He claimed Samsung would have agreed to this one-sided arrangement in a negotiation because customers would simply not buy Samsung's products without the patented technology. *See, e.g.*, Tr. 695:16–17. Mr. Kennedy's unsupported and conclusory assumption that Samsung would agree to such an arrangement—in which Samsung would bear all of the risk and do all of the work to implement the patented technology, and then hand all of the revenue to Netlist—is facially unreasonable and legally untenable.

Courts have consistently held that awarding a patentee 100% of the alleged infringer's profits associated with the patented technology is "unreasonable" and "insupportable." *See Contour IP Holding, LLC v. GoPro, Inc.*, 2020 WL 5106845, at *14 (N.D. Cal. Aug. 31, 2020) ("[I]t would be unreasonable and unreliable for [the patentee's damages expert] to conclude that 100% of profits associated with the infringing technology would go to Contour."); *Looksmart Grp., Inc. v. Microsoft Corp.*, 2019 WL 4009263, at *3 (N.D. Cal. Aug. 5, 2019) (rejecting expert's assignment of 100% of cost savings to one side because it was "insupportable" to assume that one side would leave a hypothetical negotiation with no gain); *Nordock, Inc. v. Systems, Inc.*, 2013 WL 989864, at *8 (E.D. Wis. Mar. 13, 2013) (excluding opinions of patentee's expert because his "reliance on the 100% royalty figure does not reflect . . . any balancing of the parties' interests");

[redacted]

see also Zegers v. Zegers, Inc., 458 F.2d 726, 728 n.8 (7th Cir. 1972) ("It would, of course, be most unlikely that a licensee would be willing to pay 100% of his profits to the patentee in exchange for a license.").

If it is "unreasonable" and "insupportable" to award the patentee 100% of the alleged infringer's ***profits*** attributable to the patented technology, it should go without saying that awarding 100% of the ***revenues*** associated with that technology cannot be justified. *See Labyrinth Optical Techs. LLC v. Alcatel-Lucent USA, Inc.*, 2015 WL 12696081, at *4 (C.D. Cal. Sept. 2, 2015) (excluding opinions of patentee's expert that parties would have agreed to royalty payment amounting to 100% of revenue associated with patented technology). In *Labyrinth Optical*, the patentee's expert opined that the alleged infringer would pay 100% of the revenue associated with the patented chromatic dispersion compensation technology as a royalty, on the ground that the patentee's "bargaining position is strong enough that it would hold out for the full economic value" of that technology. 2015 WL 1269608, at *3. The district court excluded the testimony as "too attenuated to be reliable." *Id.* In rejecting the expert's opinion that the alleged infringer would have "handed all of its chromatic dispersion compensation revenues" to the patentee, the district court noted that the expert "present[ed] no facts or data demonstrating that anyone has ever agreed to pay 100% of its revenues from a patent process under similar circumstances," and there was "no evidence that [the alleged infringer] or anyone else has ever agreed to pay 100% or even 25% royalty, nor evidence that [the patentee] has ever received such a royalty." *Id.*

Similar to *Labyrinth Optical*, neither Mr. Kennedy nor Netlist presented any facts or data demonstrating that anyone has ever agreed to pay 100% of the revenue associated with the patented technology for any license, much less under circumstances similar to those here. More to the point, there is no evidence that Samsung has ever agreed to pay a 100% royalty, or that Netlist has ever

[redacted]

received one. Mr. Kennedy's opinion that the parties would have agreed to 100% of the revenue attributable to the patented technology as a royalty thus is "too attenuated to be reliable." *Labyrinth Optical*, 2015 WL 1269608, at *3. Indeed, by assigning 100% of revenue, [redacted] There is no credible evidence whatsoever that Samsung would have been a "willing licensee" to that proposal, which would leave Samsung with nothing (at best).

In reality, Mr. Kennedy's damages theory amounts to a demand that Samsung disgorge not only its profits, but all of its revenues, allegedly attributable to using the patented features—a remedy that Congress long ago eliminated for utility patents. *See Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 505 (1964) (holding that Congress amended Section 284 "precisely to eliminate the recovery of [the infringer's] profits . . . and allow recovery of damages only"). Given the lack of evidence showing that a licensee would agree to such disgorgement in the real world, Mr. Kennedy's theory cannot support the damages award because it is "untethered from the patented technology at issue and the many licenses thereto and, as such, [is] arbitrary and speculative." *LaserDynamics*, 694 F.3d at 81; *see also Whitserve, LLC v. Comput. Packages, Inc.*, 694 F.3d 10, 30–31 (Fed. Cir. 2012) (vacating jury's damages award where patentee's damage expert's testimony was "conclusory, speculative and, frankly, out of line with economic reality").

Mr. Kennedy's 100% award also goes well beyond the 25% profit split rule-of-thumb and the 50% (Nash) rule-of-thumb that the Federal Circuit has rejected. *See Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1320 (Fed. Cir. 2011); *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1332–34 (Fed. Cir. 2014). For example, in *Uniloc* the Federal Circuit rejected "as fundamentally flawed," 632 F.3d 1315, the so-called "25% Rule," a rule of thumb assuming that

[redacted]

the alleged infringer should pay 25% of its profits to the patent owner as a royalty but "should retain a majority (i.e. 75 percent) of the profits, because it has undertaken substantial development, operational and commercialization risks, contributed other technology/IP and/or brought to bear its own development, operational and commercialization contributions," *id.* at 1313 (citation omitted). Likewise, in *VirnetX*, the Federal Circuit held that reliance on the 50% starting point was improper even though the patent owner's expert adjusted the split (in the defendant's favor) based on the facts of the case and applied the split to incremental profits. 767 F.3d at 1333–34. Here, Mr. Kennedy made no adjustment to his 100% start (and end) point and applied the 100% to *revenue*, not profits. As in *VirnetX*, this flawed analysis "provides a baseline from which juries might hesitate to stray, even if the evidence supported a radically different split." *Id.* at 1333. Samsung is entitled to JMOL of no damages for this reason alone.

2. JMOL of no damages is required because Mr. Kennedy failed to apportion as required by law.

Damages must be tied directly to the incremental value of the asserted patent. *See Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1233 (Fed. Cir. 2014) ("[T]he patent holder should only be compensated for the approximate incremental benefit derived from his invention."); *LaserDynamics*, 694 F.3d at 67 (reasonable royalty damages must "separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features"); *see also VirnetX*, 767 F.3d at 1329. Mr. Kennedy's calculations were purportedly based on a comparison between the accused products and alleged non-infringing alternatives. Such an analysis required Netlist to establish that the differences between the accused products and the alternatives are limited to incremental benefits provided by the asserted patents. *See Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1310 (Fed. Cir. 2018). Netlist failed to do so.

[redacted]

For the DDR5 products, Dr. Mangione-Smith opined based on one Samsung marketing document that DDR5 could offer an increase of 30% power efficiency over the prior generation DDR4 products, which did not include an on-board power management chip. Tr. 381:8–383:12. Yet neither he nor any other Netlist witness offered any evidence or analysis connecting this purported 30% improvement solely to the claims of the '918 and '054 patents.

As to the DDR4 products, Netlist offered no evidence or analysis connecting the purported improvement (the ability to use two DIMMs per channel) to the specific type of buffer claimed in the '339 patent, nor did Dr. Mangione-Smith address the benefits of the claimed buffer as compared to other types of buffers that would not infringe the patent. In fact, Netlist never offered ***any*** evidence of the precise non-infringing alternative—to the contrary, Mr. Kennedy was openly confused about what was, and what was not, accused. *Compare* Tr. 387:15–16 (Mangione-Smith testimony that Samsung's "DDR4 LRDIMM products," without qualification, "use the '339 inventions"), *with* [redacted] As such, Netlist's claim that Samsung would have been unable to offer any two-DIMMs-per-channel configuration without the '339 patent was not supported by any substantial evidence.

As to HBM, Dr. Brogioli asserted that [redacted] But Dr. Brogioli failed to address other prior art with 8-high stacks, and neither he nor Mr. Kennedy provided specific evidence to demonstrate why the later '060 and '160 patents were supposedly necessary for 8-high stacks. *Id.*; Tr. 701:15–703:13 (Kennedy).[8]

[8] Mr. Kennedy cited JTX27, which shows, at most, an industry trend of increasing stack height over time without indicating the reason for that trend.

[redacted]

In fact, Netlist failed to present any evidence accounting for the benefits already provided by the prior art. Tr. 408:23–409:4 (Mangione-Smith admitting he failed to consider prior art, or what was "new or unique," in assessing incremental benefits of the '054 and '918 patents); Tr. 608:10–609:23 (Brogioli admitting he failed to consider prior art in assessing the incremental benefits of the '060 and '160 patents); *see also* Tr. 195:9–11 (Milton confirming "today's memory modules . . . have a lot of advancements" and components). Moreover, Netlist ignored—and intentionally sought to exclude—the JEDEC standards, precisely to avoid having to explain to the jury the difference between the JEDEC standards and the purported incremental benefit provided by the asserted patents. These failures further demonstrate that Mr. Kennedy's damages analysis did not isolate the alleged benefit of the patents. *See Niazi Licensing Corp. v. St. Jude Med. S.C., Inc.*, 30 F.4th 1339, 1357 (Fed. Cir. 2022) ("Whether one refers to this as failure to 'apportion' . . . or as failing to limit damages to a reasonable approximation of actual infringing uses of the claimed method, Mr. Carlson's failure to account for non-infringing uses of the sold devices was legally improper.").[9]

3. The damages award is flawed because Mr. Kennedy failed to take account of the highly comparable Samsung and SK hynix licenses.

Comparable licenses must, as a matter of law, be considered in determining damages. "Actual licenses to the patented technology are highly probative as to what constitutes a reasonable royalty for those patent rights because such actual licenses most clearly reflect the economic value of the patented technology in the marketplace." *LaserDynamics*, 694 F.3d at 79. Consequently, prior licenses to the asserted patents "carry considerable weight in calculating a reasonable royalty

[9] On cross examination, Mr. Kennedy [redacted] Tr. 775:8–20.

[redacted]

rate." *Unisplay, S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 519 (Fed. Cir. 1995). In *LaserDynamics*, the Federal Circuit held that a damages award cannot stand when the patentee's expert disregards comparable licenses. 694 F.3d at 79–81. The court explained that where "the licenses to the patents-in-suit were all for lump[] sum amounts not exceeding $1 million," *id.* at 80, the patentee's "6% running royalty theory cannot be reconciled with the actual licensing evidence, which is highly probative of the patented invention's economic value in the marketplace, and of the form that a hypothetical license agreement would likely have taken," *id.* at 79.

Mr. Kennedy improperly discarded the two unquestionably comparable license agreements: the Samsung license (the JDLA) and the SK hynix license. Both of these agreements are arms-length licenses negotiated by Netlist that include the asserted patents, and the Samsung license is a non-litigation license. But [redacted] Mr. Kennedy disregarded them as "strategic," *see, e.g.*, Tr. 692:15–19, 749:1–2.

While ignoring the only licenses to the asserted patents, Mr. Kennedy knowingly presented the jury with a non-comparable high-dollar agreement—the Rambus license—even though [redacted]. Tr. 742:17–22. Mr. Kennedy candidly acknowledged that his reliance on the Rambus license was [redacted]." Tr. 741:20–23; *see also* Tr. 691:15–23. That is an improper use of a license agreement. *See ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 872 (Fed. Cir. 2010) (a patentee may not "inflate the reasonable royalty analysis with conveniently selected licenses without an economic or other link to the technology in question"); *IP Innovation L.L.C. v. Red Hat, Inc.*, 705 F. Supp. 2d 687, 691 (E.D. Tex. 2010) (excluding expert testimony that "improperly inflate[d]

[redacted]

both the royalty base and the royalty rate by relying on irrelevant or unreliable evidence"). Unlike the Samsung and SK hynix licenses, the Rambus license does not involve Netlist—let alone the asserted patents. [redacted] And, as Mr. Kennedy admitted, [redacted].

Mr. Kennedy's failure to properly consider the comparable Samsung and SK hynix licenses—in favor of the incomparable Rambus license—resulted in an excessive royalty. As seen in the table below, in the real world Netlist ***perpetually*** licensed 87 patents to Samsung, including the asserted patents, in an agreement where Samsung paid $8 million. Tr. 720:11–721:2, 729:8–21 (Kennedy). Similarly, Netlist licensed 120 patents to SK hynix, including the asserted patents, for five years for $40 million. Tr. 729:24–730:5, 738:18–20, 739:7–9 (Kennedy). Mr. Kennedy opined, however—in the non-real-world litigation context—that Samsung would have agreed to a $400+ million royalty payment for only the ***five*** asserted patents and for only ***16*** months. Tr. 732:10–13. While Mr. Kennedy argued that these licenses included other consideration, including a "highly valuable supply obligation," *e.g.*, Tr. 692:20–21, he admitted that [redacted], which provides that [redacted].

[10] Mr. Kennedy testified that [redacted].

[redacted]

License	# Patents	Term	License Fee
Samsung (JDLA)	87	perpetual	$8 million
SK hynix	120	5 years	$40 million
Kennedy Proposal	5	16 months	$400+ million

Mr. Kennedy thus proposed a royalty 20 to 70 times higher than the effective royalty of the SK hynix portfolio license, [redacted]—and which would be even higher than the effective royalty of the JDLA—demonstrating the unreliability and unreasonableness of his analysis. Indeed, the Federal Circuit has rejected a multiple of just three times an actual license amount, much smaller than the 20–70X multiple here. *Whitserve*, 694 F.3d at 30–31 ("[T]here is little evidentiary basis under *Georgia–Pacific* Factor 2 for awarding roughly three to four times the average amount in the lump-sum agreements in evidence." (cleaned up)). Because Mr. Kennedy disregarded the only comparable licenses in the record—in favor of a non-comparable license offered only "to show that Samsung had paid significant amounts" for a prior litigation-related license—Samsung is entitled to JMOL. *See LaserDynamics*, 694 F.3d at 79–81.

4. Netlist failed to show that Mr. Kennedy's alternatives are non-infringing, available, and commercially acceptable.

Mr. Kennedy calculated damages for every asserted patent by awarding Netlist the difference between the price of the accused products and the supposed "non-infringing alternatives" to those products. Tr. 703:16–25. But as the Court instructed the jury, for Mr. Kennedy to rely on any such alternatives, they must be non-infringing, available, and commercially acceptable. Tr. 1325:19–1326:13. Netlist failed to make these showings at trial.

At the outset, Netlist failed to offer evidence that the alternatives were both non-infringing and available. Instead, some alleged non-infringing alternatives were, according to Netlist, infringing products. With respect to the DDR4 LRDIMM and HBM products, Netlist's technical experts suggested prior to trial that modifications to those accused products would be required to

render them non-infringing. But neither the technical experts nor Mr. Kennedy testified about a modified product at trial. Mr. Kennedy instead relied on Samsung's sales of ***unmodified*** DDR4 LRDIMM and four-high HBM products—*i.e.*, products that Netlist had accused of infringement. Mr. Kennedy's "non-infringing" alternative for the DDR4 LRDIMMs was a single LRDIMM with double the capacity, Tr. 700:6–25, 757:22–758:2, but [redacted].[11] For the HBM products, the alternative was a four-high HBM product, Tr. 701:15–25, but Dr. Brogioli was clear that "all" HBM products infringe, Tr. 478:24–479:3, 485:16–486:2; *see also* PDX3.5 ("All Samsung HBM Products Infringe"). Mr. Kennedy's reliance on unmodified, accused products is fatal to his entire damages model. *See LaserDynamics, Inc. v. Quanta Computer, Inc.*, 2011 WL 197869, at *3 (E.D. Tex. Jan. 20, 2011).

With respect to the DDR5 products, Mr. Kennedy relied on a hypothetical, slower LRDIMM as an alternative. Tr. 695:18–696:11. Netlist did not, however, offer any evidence that this hypothetical product was available during the damages period. *See LaserDynamics*, 2011 WL 197869, at *3 (rejecting availability of non-infringing alternative because the accused infringer failed to show that the alternative was actually on the market or that it would have had the capability to develop the alternative for its use during the damages period), *objections overruled*, *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 2011 WL 13196509 (E.D. Tex. Jan. 28, 2011).

Mr. Kennedy also admitted [redacted] For example, he did not (i) identify evidence of demand for the specific patented features; (ii) conduct market

[11] Mr. Kennedy assumed at trial that the DDR4 products only infringed when used in pairs. Tr. 757:3–21. That assumption, however, is irreconcilable with the testimony of Dr. Mangione-Smith, who agreed that all of the claim limitations have "to be on the module" to infringe. Tr. 473:15–19.

[redacted]

studies or customers surveys to value those features; (iii) interview any potential customers; or (iv) identify any instances of customers accepting the alternatives. Tr. 701:15–703:13; *see also* Tr. 400:24–401:2 (Mangione-Smith agreeing that DDR4 LRDIMM customers would *not* "purchase modules that are not capable of running at DDR4 speeds with two or more modules per channel").

Because there is no evidence that the alleged alternatives are non-infringing, available, and commercially acceptable, Mr. Kennedy's opinions do not support the damages award. *See Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1350–51 (Fed. Cir. 1999); *Sherwin-Williams Co. v. PPG Indus., Inc.*, 2020 WL 1283465, at *9 (W.D. Pa. Mar. 18, 2020) (granting summary judgment of no non-infringing alternatives where there was "no evidence to support the availability or acceptability of an alternative product during the damages period").

5. JMOL of no damages on the DDR5 products is additionally required because there is no substantial evidence to support the award.

Mr. Kennedy's damages calculations for the DDR5 products—which were accused of infringing the '918 and '054 patents—relied on a fundamentally flawed hedonic regression analysis performed by Dr. Groehn, a separate expert who did not testify at trial. Samsung challenged the reliability and admissibility of Dr. Groehn's hedonic regression analysis on numerous grounds, including because he manipulated sales data for the DDR4 products, failed to select the proper variables to analyze that manipulated data, used a flawed methodology for the cherry-picked variables he did select, and chose not to verify his manipulated results. *See* Dkt. 203 at 2–8. As just one example, Netlist did not dispute before trial that Dr. Groehn removed over ***25%*** of the sales data for the DDR4 products. *See* Dkt. 296. As Samsung argued in its motion to exclude Dr. Groehn's opinions, numerous courts (including the Eastern District of Texas) have excluded hedonic regressions like Dr. Groehn's. *Id.* at 8–10. In opposition, Netlist argued "any disputes that Samsung has with his methodologies or his results are classic material for cross examination and

not for exclusion." 3/29 PTC Tr. 12:5–8. The Court agreed with Netlist, holding that the issues with Dr. Groehn's regression analysis "don't rise to the level of warranting outright exclusions" but were "appropriate for vigorous cross examination." 3/29 PTC Tr. 18:12–18.

Remarkably, however, Netlist did not present Dr. Groehn for cross-examination at trial, even though Netlist put him on the witness list every day (including rebuttal). Mr. Kennedy's testimony based on the regression analysis was thus legally untenable, because "[a]n expert cannot parrot the opinions and conclusions of other experts whose testimony is not subject to cross-examination." *Bonin v. Sabine River Auth. of Texas*, 2022 WL 19731177, at *6 (E.D. Tex. Nov. 9, 2022) (quoting *Robison v. Cont'l Cas. Co.*, 2022 WL 336900, at *9 (E.D. Tex. Jan. 6, 2022)), *adopted*, 2022 WL 19731176 (E.D. Tex. Dec. 20, 2022); *see also Factory Mut. Ins. Co. v. Alon USA L.P.*, 705 F.3d 518, 524 (5th Cir. 2013) ("Rule 703 was not intended to abolish the hearsay rule and to allow a witness, under the guise of giving expert testimony, to in effect become the mouthpiece of the witnesses on whose statements or opinions the expert purports to base his opinion." (cleaned up)); *Robroy Indus.-Texas, LLC v. Thomas & Betts Corp.*, 2017 WL 1319553, at *9 (E.D. Tex. Apr. 10, 2017) ("An expert who parrots an out-of-court statement is not giving expert testimony; he is a ventriloquist's dummy." (quoting *United States v. Brownlee*, 741 F.3d 479, 482 (7th Cir. 2014))); *Wi-LAN Inc. v. Sharp Elecs., Corp.*, 992 F.3d 1366, 1374 (Fed. Cir. 2021) ("Rule 703 does not authorize admitting inadmissible evidence on the pretense that it is the basis for expert opinion when, in fact, the expert adds nothing to the inadmissible evidence other than transmitting it to the jury." (cleaned up)); *Dura Auto. Sys. of Indiana, Inc. v. CTS Corp.*, 285 F.3d 609, 614 (7th Cir. 2002) ("A scientist, however well credentialed he may be, is not permitted to be the mouthpiece of a scientist in a different specialty.").

[redacted]

"In this District, 'the crucial issue' is whether the testifying expert has 'independently evaluated or verified the opinions upon which he relies.'" *Bonin*, 2022 WL 19731177, at *5 (quoting *Robison*, 2022 WL 336900, at *9) (cleaned up). Mr. Kennedy admitted, [redacted] Mr. Kennedy's opinions based on the regression analysis are therefore "inherently unreliable." *Robison*, 2022 WL 336900, at *9 ("Expert testimony based solely or primarily on the opinions of other experts is inherently unreliable. It is only when the expert undertakes some independent investigation of the underlying opinions that his testimony may be considered reliable." (cleaned up)).

Mr. Kennedy's reliance on Dr. Groehn's regression analysis suffered from another fundamental error. As Mr. Kennedy admitted, the regression analysis did not involve DDR5 products, but instead was based on data for a different set of accused products (the DDR4 products). Tr. 698:8–9. That reliance flies in the face of his testimony that DDR5 was [redacted] The Court should thus grant JMOL of no damages for the DDR5 products.

B. Alternatively, the Court should grant JMOL that damages are no more than $19.3 million.

The Federal Circuit has held that a new trial is not appropriate, and reduction of the damages award as a matter of law is required, where the plaintiff has produced no evidence in support of a legally viable damages theory that could allow for an award greater than what the defendant proposed. For instance, in *Tronzo v. Biomet, Inc.*, 236 F.3d 1342 (Fed. Cir. 2001), the Federal Circuit upheld the reduction of a damages award from $7,134,000 to $520, holding that it should not be treated as a remittitur and a new trial on damages was not otherwise permitted. The court in *Tronzo* explained that "the district court did not reweigh any evidence, nor did it exercise

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its discretion in computing the damages award[,]" and instead "awarded the maximum damages possible given the lack of competent evidence" for an award greater than $520. *Id.* at 1351. While the plaintiff argued for more based on "lost business opportunities," the evidence "that Dr. Tronzo attempted to rely on was too remote and inconclusive to reflect the actual injury incurred by Dr. Tronzo or to measure his damages." *Id.*

This case falls squarely within the rationale of *Tronzo*. Netlist made a choice to pursue a damages theory that is unsupportable as a matter of law and eschewed any alternative damages theory that could be supported by the law and the evidence. There is no legal or logical basis to allow Netlist a second bite at the apple. *See Promega*, 875 F.3d at 666 (plaintiff may not be entitled to damages or a new trial where it fails to put on a legitimate damages case). The only reliable evidence of damages in the record came from Mr. Meyer, who testified, based on comparable licenses that involved Netlist and the asserted patents, that a hypothetical negotiation would have resulted in a reasonable royalty of no more than $19.3 million. Tr. 1165:6–1177:7. Specifically, Mr. Meyer analyzed the real-world SK hynix license including the asserted patents and concluded that [redacted] Thus, if the Court does not grant JMOL of no damages, it should grant JMOL of $19.3 million in damages.

C. If the Court does not grant JMOL, Samsung is entitled to a new trial on damages.

If the Court does not grant Samsung's motion for JMOL on damages, it should grant a new trial. *Shows v. Jamison Bedding, Inc.*, 671 F.2d 927, 930 (5th Cir. 1982) (holding that new trial may be granted even if there is substantial evidence that would preclude JMOL).

[redacted]

1. The excessive damages award is against the weight of the evidence.

The Court should grant Samsung a new trial on damages because the jury's award was unduly excessive and against the great weight of the evidence. *See Oiness v. Walgreen Co.*, 88 F.3d 1025, 1030 (Fed. Cir. 1996). As discussed above, Netlist's damages evidence, among other things: (1) was based on an arbitrary and unsound assumption that Samsung would have agreed to a royalty of 100% of the revenue associated with the patented technology; (2) failed to apportion the value of the allegedly patented features; (3) ignored the only real-world licenses to the asserted patents to Samsung and SK hynix, while relying on a non-comparable license to Rambus to show that Samsung had paid a large sum of money when accused of infringement; (4) failed to establish that the alternatives that form the basis for Mr. Kennedy's damages calculations were non-infringing, available, and commercially acceptable to customers; and (5) for the DDR5 products, relied on an improper hedonic regression analysis performed by an expert who did not testify. Mr. Kennedy's flawed damages analysis misled the jury into awarding a "reasonable royalty" of more than $300 million, equivalent to 14.2% (DDR4), 18.1% (HBM), and 28.7% (DDR5) of the ***total revenues*** of the accused products—even though the only licenses for the asserted patents involved lump-sum payments. As discussed above, the evidence of Netlist's real-world licensing activities showed that a reasonable royalty should not have exceeded $19.3 million.

2. Mr. Kennedy's unreliable testimony should have been excluded.

Mr. Kennedy's damages opinions were unreliable and should have been excluded. *See* Dkt. 205. Specifically, Mr. Kennedy's opinions were improper because they:

- relied on an arbitrary and economically unsound assumption that a hypothetical negotiation would result in Samsung agreeing to give Netlist 100% of the revenues associated with the patented technology, *id.* at 9–10;
- failed to properly apportion the value of the patented features, *id.* at 3–5;

[redacted]

- failed to account for the comparable Samsung and SK hynix licenses and instead were based on the non-comparable Rambus license, *id.* at 11–12;
- were based on alleged alternatives to the accused products without any evidence that the alternatives would have been non-infringing, available, and commercially acceptable, *id.* at 8–9; and
- were based on Dr. Groehn's hedonic regression analysis, which was fundamentally unreliable, Dkt. 203 at 2–14, and was based on DDR4 products instead of the accused DDR5 products, Dkt. 203 at 10–11; Dkt. 205 at 10–11.

The failure to exclude Mr. Kennedy's damages opinions was prejudicial and erroneous, and led to a grossly excessive damages award that is against the great weight of the evidence. 3/28 PTC Tr. 199:17–18 (denying motion to strike Kennedy opinions); 3/29 PTC Tr. 18:12–18 (denying motion to strike Groehn opinions).

D. Alternatively, the Court may condition the new trial on a remittitur.

The Court may order a new trial conditioned upon remittitur of "the maximum amount the trier of fact could properly have awarded." *Delahoussaye v. Performance Energy Servs., L.L.C.*, 734 F.3d 389, 394–95 (5th Cir. 2013). For the reasons discussed above, Mr. Kennedy's damages calculations are fundamentally unreliable and cannot support any damages award. The only reliable evidence of damages in the record came from Mr. Meyer, who testified, based on comparable licenses that involved Netlist and the asserted patents, [redacted]. Consequently, if the Court remits the damages award, it should reduce it to the highest amount a jury could have properly awarded for the alleged infringement: $19.3 million.

IV. Samsung is entitled to JMOL of no willful infringement.

Netlist failed to provide evidence that Samsung had knowledge of the asserted patents and engaged in "deliberate or intentional infringement," as required for a claim of willful infringement.

[redacted]

Ironburg Inventions Ltd. v. Valve Corp., 64 F.4th 1274, 1296 (Fed. Cir. 2023). Samsung is therefore entitled to JMOL of no willful infringement.

A. Netlist failed to provide substantial evidence of deliberate or intentional infringement.

The Court has ruled that Samsung did not infringe (and thus did not willfully infringe) before Netlist's purported termination of Samsung's license to the asserted patents in July 2020. *See* Dkt. 432 at 2, 4; Tr. 1266:4–1267:1. Netlist thus had to show that Samsung's conduct following the attempted termination (which Samsung maintains was ineffective) rose to the level of deliberate or intentional infringement. The mere fact that Samsung continued sales of the accused products after this date is insufficient as a matter of law. *See Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 988 (Fed. Cir. 2021) ("Knowledge of the asserted patent and evidence of infringement is necessary, but not sufficient, for a finding of willfulness.").

Netlist had no evidence of deliberate or intentional infringement after the purported license termination. As an initial matter, there was no evidence that Samsung even knew of four of the asserted patents (all but the '060 patent) before Netlist filed this action. Samsung thus cannot be liable for willful infringement of these patents, at least before the action was filed.[12] *See Gustafson Inc. v. Intersystems Indus. Prods., Inc.*, 897 F.2d 508, 511 (Fed. Cir. 1990) ("[A] party cannot be found to have 'willfully' infringed a patent of which the party had no knowledge.").

More important, Netlist offered no evidence that Samsung took any actions, with respect to *any* asserted patent, after the alleged license termination or the filing of this action beyond

[12] While Samsung recognizes that this Court has not held that pre-suit knowledge of a patent is required to establish post-suit willfulness, *Packet Intelligence LLC v. NetScout Sys., Inc.*, 2019 WL 2375218, at *8 (E.D. Tex. June 5, 2019), *rev'd in part on other grounds*, 965 F.3d 1299 (Fed. Cir. 2020), other courts have adopted such a requirement, *see, e.g.*, *Swipe Innovations, LLC v. NCR Corp.*, 2013 WL 6080439, at *2 (N.D. Ga. Nov. 18, 2013). Samsung respectfully submits that the cases adopting this requirement should be followed and that Samsung should therefore be granted JMOL of no willfulness for the '339, '918, '054, and '160 patents.

[redacted]

continuing to sell the accused products. Netlist's case instead rested on vague documents from before the alleged license termination, but Netlist presented no evidence that Samsung had reason to investigate Netlist's patents, let alone formed a belief that the patents were infringed, while Samsung was licensed—especially given that four of the asserted patents did not even exist at the time Samsung entered into the JDLA. No reasonable jury could find willfulness on this record.

The '339 patent. For the '339 patent, Netlist relied on a 2015 Netlist presentation (PX464) discussing a potential partnership with Samsung and mentioning a parent to the '339 patent. Tr. 216:24–217:23 (Milton). But PX464 does not mention the '339 patent, which had not even been filed at the time. Knowledge of one patent in a family does not establish knowledge of a related patent. *See Intell. Ventures II LLC v. Sprint Spectrum, L.P.*, 2019 WL 1987172, at *2 (E.D. Tex. Apr. 12, 2019) ("[K]nowledge of other patents in the same portfolios, with some of those being within the same family as the asserted patents, [is] insufficient to defeat a motion for summary judgment for pre-suit willfulness."), *adopted by* 2019 WL 1979866 (E.D. Tex. May 2, 2019).

Netlist also relied on two documents from 2019 discussing Netlist and the JDLA. PX1756 at 4; PX1663. *See* Tr. 147:5–25, 151:12–21 (opening); Tr. 206:9–20, 218:25–220:6 (Milton); Tr. 1332:12–1333:8 (closing). But neither document mentions the '339 patent, which had not issued at the time, or any other asserted patent. Far from demonstrating willfulness, PX1756 shows that Samsung had "***not*** checked" whether it used any Netlist patents because the JDLA obviated any need to investigate this issue. PX1756 at 7 ("The patent issue was resolved by signing the perpetual cross-licensing agreement, so Netlist, Inc.'s patent list and our company's use (Yes/No) of the technologies was not checked.").

The '918 and '054 patents. Netlist pointed to PX586—an email from 2019 discussing a request from Samsung to discuss DDR5 technology—to support its argument on the '918 and '054

[redacted]

patents. Tr. 200:14–201:6, 290:23–291:2 (Milton); Tr. 1244:20–24 (Rule 50(a) argument). But this email does not discuss Netlist's patents, and there is no evidence that any of Netlist's patents were discussed in connection with the email. Indeed, the applications for the '918 and '054 patents had not even been filed when this email was sent. *See* JTX3 at 1; JTX4 at 1. Netlist's reference in closing to PX621, a 2014 presentation including the words "Inelligent [sic] On-Module power distribution: US Pat.Pending [sic]," is similarly inadequate. PX621 at 28; Tr. 1329:1–8 (closing). Netlist asserted that the '918 and '054 patents cover this technology, Tr. 149:17–150:12 (opening), but the document does not mention the '918 or '054 patents, which had not been filed at the time.

The '160 and '060 patents. Netlist's argument for the '060 and '160 patents centered on PX446, a patent list sent to Samsung in November 2016. Tr. 1244:24–1245:3 (Rule 50(a) argument). But this document does not support the jury verdict. PX446 does not mention the '160 patent at all (even though it had issued) and thus cannot show willfulness as to that patent. While it does identify the '060 patent, Samsung was licensed to all of Netlist's patents, including the '060 patent, at the time of the document. Tr. 301:13–304:24 (Milton); Tr. 1143:17–19 (Ji). This forecloses any inference that PX446 led to Samsung believing the accused HBM products infringe.

Further, Samsung provided unrebutted testimony that Netlist's sharing of PX446 had nothing to do with Samsung. Mr. Hyun Ki Ji explained that Netlist sent PX446 a few months after a dinner meeting between himself and Netlist's Jibum Kim in June 2016, while the JDLA was in force. *See* PX1662 at 2 (discussing the dinner). Mr. Ji testified that, during the dinner, Mr. Kim did not say that Samsung was infringing any of Netlist's patents. Tr. 1142:18–1143:8. Rather, Netlist sent PX446 to Samsung because Netlist was having issues with SK hynix, a competitor of Samsung. Tr. 1143:20–1144:3 (Ji); Tr. 1171:4–8 (Meyer). No reasonable jury could find that PX446 evidences deliberate or intentional infringement by Samsung four years after it was sent.

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Netlist also identified a presentation that Netlist alleges was given orally to Samsung in 2015. *See* PX1778; Tr. 152:18–153:5 (opening); Tr. 220:17–221:19 (Milton); Tr. 1334:14–21 (closing). But this email thread is entirely internal to Netlist, and Netlist produced no documentary evidence that the presentation was ever shown to Samsung. And though a slide mentions the '060 patent, it does not reference the accused HBM products or allege that they infringe the '060 patent.

More generally, Netlist presented no evidence that it told Samsung it was infringing the asserted patents before filing suit. Chuck Hong, Netlist's CEO, confirmed that Netlist did not inform Samsung of any alleged infringement—for any asserted patent—*before* Netlist purported to terminate the JDLA. Tr. 1130:4–7. And there was no evidence that Netlist informed Samsung of the alleged infringement *after* the purported license termination until Netlist filed suit.

Nor did Netlist point to any affirmative post-suit conduct by Samsung beyond continuing to sell the accused products—which, as explained above, is legally insufficient to demonstrate willfulness. Netlist argued in closing that Samsung employees failed to investigate infringement, Tr. 1338:3–11, but this Court has held that a failure to investigate "is unquestionably insufficient to support a finding of willfulness." *Huawei Techs. Co. v. T-Mobile US, Inc.*, 2017 WL 11638984, at *5 (E.D. Tex. Sept. 29, 2017); *see also SRI Int'l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1309 (Fed. Cir. 2019) (engineers' failure to read patents did not support a willfulness finding).

Additionally, Netlist never showed that any Samsung employee with knowledge of the asserted patents or alleged infringement was involved in the continued sales of the accused products—let alone anyone with sufficient actual or apparent authority such that his acts and knowledge can be imputed to Samsung. *See Staub v. Proctor Hosp.*, 562 U.S. 411, 418 (2011) ("The Restatement of Agency suggests that the malicious mental state of one agent cannot generally be combined with the harmful action of another agent to hold the principal liable for a

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tort that requires both."); *Potter Voice Techs., LLC v. Apple Inc.*, 24 F. Supp. 3d 882, 886 (N.D. Cal. 2014) ("In the context of willful infringement, it is safe to say that the employees required to have knowledge of the asserted patent must have some connection to the decision willfully to infringe.").

B. No reasonable jury could have found that Samsung was willfully blind.

The Court instructed the jury, over Samsung's objection, that it could substitute the willful blindness standard for the "deliberate or intentional" standard required for a finding of willful infringement. Tr. 1277:3–15, 1310:11–17. While willful blindness is a basis for an inducement claim under § 271(b), *see Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 765–66 (2011), neither the Supreme Court nor the Federal Circuit has recognized this theory for a claim of willful infringement. Further, *Global-Tech* held only that willful blindness could substitute for a showing of actual knowledge of a patent, not that it could satisfy the *mens rea* requirement, as the Court's instruction permitted here. *See Ansell Healthcare Prod. LLC v. Reckitt Benckiser LLC*, 2018 WL 620968, at *7 (D. Del. Jan. 30, 2018) ("[I]nsofar as willful blindness does apply in willful infringement cases, it only substitutes for actual knowledge, as opposed to egregious behavior.").

Even if this were a viable theory, Samsung would be entitled to JMOL. Willful blindness requires that "(1) [t]he defendant must subjectively believe that there is a high probability that a fact exists and (2) the defendant must take deliberate actions to avoid learning of that fact."[13] *Global-Tech*, 563 U.S. at 769. As discussed above, there was no evidence that Netlist informed Samsung of the alleged infringement until filing suit, and none of the communications from before or during the license period was sufficient to show that anyone at Samsung believed years later

[13] The Court's instruction incorrectly allowed willful blindness to be found through mere indifference to another's rights. Tr. 1310:13–17.

[redacted]

that infringement was highly likely and took deliberate steps to avoid this knowledge—let alone that any such individual had responsibility for the alleged infringement. *See Staub*, 562 U.S. at 418. Evidence that Samsung did not investigate possible infringement of Netlist patents as they issued is insufficient to show that Samsung took "***active efforts*** . . . to avoid knowing about the infringing nature" of the accused products. *Global-Tech*, 563 U.S. at 770.

V. Alternatively, Samsung is entitled to a new trial.

To the extent JMOL is not granted, a new trial is warranted for multiple independent reasons. In particular, a new trial on infringement, invalidity, and damages should be granted for the specific grounds set forth above. *See supra* §§ I.F, II.C, III.C, & III.D. In addition, the Court should order a new trial because, as discussed below, (a) Netlist's improper conduct throughout the trial influenced and inflamed the jury, and (b) the erroneous exclusion of evidence relating to JEDEC prejudiced Samsung's ability to present its case.

A. Netlist's improper conduct at trial unfairly prejudiced Samsung.

Netlist's counsel committed multiple material violations of this Court's rulings and Standing Order on Motions *in Limine* ("MILs"), including by (1) improperly arguing that the Court already approved of Netlist's infringement position; (2) violating the Court's prohibition on quantifying the alleged value of the SK hynix supply agreement; and (3) improperly commenting on the national origin of Samsung and its witnesses. Having "exceeded the limits of advocacy as to cause a prejudicial verdict," counsel's statements justify a new trial. *Westbrook v. Gen. Tire & Rubber Co.*, 754 F.2d 1233, 1238 (5th Cir. 1985).

First, Netlist's counsel invaded the province of the jury by improperly suggesting that the Court already decided issues in Netlist's favor. For example, with respect to the '060 and '160 patents, Netlist sought to resurrect its failed claim construction argument that the disclaimer reflected in the construction of "array die" is limited to the DRAM circuits of Rajan. *See, e.g.*, Tr.

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495:3–9, 512:17–20, 618:1–619:5 (Brogioli); *see also* Tr. 495:10–505:15, 507:18–21, 510:16–511:22, 512:21–514:15, 515:22–25 (Samsung's objections). As explained above, it was improper for Netlist and its expert to argue claim construction before the jury. *See supra* § I.F. But Netlist's counsel compounded the error during closing argument by suggesting that the jury *must* accept Netlist's erroneous construction of the term "DRAM circuit," because the Court would not let Netlist "break [its] agreement with the Patent Office." Tr. 1375:1–4 ("They said and accused us of lying to the Patent Office, of going back on our agreement with the Patent Office. Do you think Judge Gilstrap would let us break our agreement with the Patent Office?").

Second, Netlist's counsel violated the Court's order excluding any evidence or argument quantifying the alleged value of the SK hynix supply agreement. With respect to the SK hynix agreement and the JDLA, the Court specifically instructed:

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[redacted] During closing arguments, however, Netlist's counsel told the jury that the "supply agreement" with SK hynix is worth over $450 million:

> The SK hynix agreement was signed after we were no longer able to obtain supply pursuant to the supply agreement with Samsung, and that agreement has been a lifeline for this company. It's going to net us over ***$450 million in revenue***. Samsung says SK hynix is a comparable agreement? It's going to net us ***$450 million in revenue***.

Tr. 1379:20–25.

These improper statements necessarily contaminated the verdict. Samsung's expert, Mr. Meyer, carefully explained that the comparable SK hynix license amounted to $40 million. Tr. 1165:1–16, 1166:7–25. Yet with one statement in closing, Netlist inappropriately inflated the

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perceived value of the SK hynix agreement by tenfold and thereby influenced the jury to render a large, unsupported damages award.

Third, Netlist's counsel made jingoistic comments in closing arguments to inflame the jury against Samsung on the basis of national origin. Netlist's counsel deliberately juxtaposed the Korean nationality of Samsung's witness against the collective U.S. nationality of the jury:

> They spoke about flying 7,000 miles or 6,000 miles. [Mr. Ji] flew 6,000 miles to tell us that they needed access to our patents and to not say one explanation for why they don't infringe. It doesn't matter what country you are from; ***in this country, you follow the law***.

Tr. 1370:20–25.

This statement violates the Court's Standing Order on MILs No. 2, which prohibits a party "from introducing evidence, testimony, or argument that raises . . . national origin . . . of a party, witness, attorney, or law firm." Such an "us-against-them plea can have no appeal other than to prejudice by pitting 'the community' against a nonresident corporation." *Westbrook*, 754 F.2d at 1238. An improper "community conscience" plea is not limited to "specific words; it extends to all impassioned and prejudicial pleas intended to evoke a sense of community loyalty, duty and expectation. Such appeals serve no proper purpose and carry the potential of substantial injustice when invoked against outsiders." *Id.* at 1238–39. The remarks of Netlist's counsel served no purpose but to inflame the jury against a foreign corporation.[14] *See BE & K Const. Co. v. United Bhd. of Carpenters & Joiners of Am., AFL-CIO*, 90 F.3d 1318, 1331 (8th Cir. 1996) (remanding

[14] The Court admonished counsel that their closing arguments must "conform to the Court's rulings and admitted evidence" and "[i]f somebody strays intentionally across that line, I will view it as an intentional act." Tr. 1229:9–13. The Court further instructed: "I don't want there to be objections to the other one's closing unless there is absolutely no alternative." Tr. 1229:17–18. The Court's statements serve as a *de facto* objection to any violation of the Court's previous rulings and Standing Order on MILs. Moreover, an objection was unnecessary, as Netlist's misconduct "was of such magnitude . . . particularly in the circumstances of this case, as to have seriously prejudiced [Samsung's] right to a fair trial." *Edwards v. Sears, Roebuck & Co.*, 512 F.2d 276, 286 (5th Cir. 1975).

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for a new trial where plaintiff's attorney "asked the jury to send a message to 'these large unions who go around the country doing things like International Falls that the publicity campaign and the type of interference that they are doing is not permitted ***in this country***.'" (cleaned up)).

Netlist's improper closing arguments, coupled with the excessive verdict, indicate that passion and prejudice infected jury deliberation. A new trial is therefore required. *See Whitehead v. Food Max of Miss., Inc.*, 163 F.3d 265, 278 (5th Cir. 1998) (granting new trial on damages based on improper closing argument followed by large jury verdict); *Edwards*, 512 F.2d at 282–83 (granting new trial on liability and damages based in part on improper closing argument).

B. The erroneous exclusion of JEDEC-related evidence prejudiced Samsung.

Before trial, the Court precluded Samsung from presenting important evidence relating to the JEDEC memory standards, including evidence that (1) the accused DDR4 and DDR5 products comply with the standards, (2) those standards are the result of a collaboration between hundreds of companies in the industry, and (3) Netlist's participation in JEDEC obligates it to license any essential patents on reasonable and non-discriminatory ("RAND") terms. *See, e.g.*, Tr. 994:17–22 (McAlexander); 3/28 PTC Tr. 228:1–18; 3/29 PTC Tr. 146:10–147:9, 188:15–16; Dkt. 432 at 4–5, 8, 11; Dkt. 465; Dkt. 468; Dkt. 470; Dkt. 476. Evidence that the products implement the standards—and thus incorporate a significant amount of non-accused technology—as well as evidence of a RAND royalty, was highly relevant to the issues in dispute for the '339, '918, and '054 patents, including damages. The exclusion of this evidence prejudiced Samsung, particularly in light of Netlist's arguments suggesting that it was solely responsible for developing DDR4 LRDIMM and DDR5 technology and in light of the excessive (non-RAND) jury award. Tr. 151:3–24 (statement during opening that Samsung knew Netlist "created LRDIMM technology"); Tr. 150:5–7 ("DDR5 has power management control on-module, which is exactly the technology that they've been tracking at Netlist since 2014."); *see also* Tr. 1332:16–1333:8, 1370:5–12 (closing);

[redacted]

Tr. 218:25–219:11 (Milton). The Court should grant a new trial for the '339, '918, and '054 patents so that Samsung may present this crucial evidence.[15]

CONCLUSION

For the foregoing reasons, Samsung's motion should be granted. Judgment of non-infringement should be entered in favor of Samsung on all patents; judgment of invalidity should be entered in favor of Samsung on the '339, '918, and '054 patents; judgment of no willful infringement should be entered in favor of Samsung on all patents; and judgment should be entered that Netlist is entitled to no damages or, in the alternative, that the only damages award supported by the evidence is $19.3 million. In the alternative, a new trial should be granted on non-infringement, invalidity, and damages for the reasons discussed above.

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Respectfully submitted,

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[15] Although Netlist took the position in this Court that the '339 patent is not essential, 3/28 PTC Tr. 142:23–24, and Netlist vigorously opposed any reference to Netlist's RAND obligations during trial, *see, e.g.*, Dkt. 214 at 5, Netlist subsequently relied on the damages award in the present case as evidence before the District Court of Dusseldorf, Germany, that Netlist complied with its obligation to license any DDR4 LRDIMM standard essential patents on RAND terms. According to Netlist, the "per-unit license fee of $54.34" implied by the damages award for DDR4 LRDIMM products "is significantly higher" than the $6 per unit license fee offered by Netlist in June 2022. McKeon Decl., Ex. 1 at 6 (translation); *see also* Dkt. 214-12 at 2 (Netlist's June 2022 offer letter).

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CERTIFICATE OF SERVICE

I hereby certify that the foregoing document was filed electronically in compliance with Local Rule CV-5 on September 8, 2023. As of this date, all counsel of record have consented to electronic service and are being served with a copy of this document through the Court's CM/ECG system under Local Rule CV-5(a)(3)(A) and by electronic mail.

/s/ *Michael J. McKeon*

[redacted]